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ABSTRACT

Emphasizing patterns of rural economic and social activity in the North Central Region (NCR) of the U.S., this report utilizes U.S. census data to survey and analyze: population distribution; business patterns; agricultural activity; local and county government expenditures; and income distribution. Among the major findings reported are: slightly more than 27% of the total 1970 U.S. population resided in the NCR; major concentrations of both people and economic activity were in the western end of the NCR manufacturing belt (Ohio, Indiana, Illinois, Michigan, and Wisconsin); business activity measured in terms of employment was dominated by manufacturing (6.6 million); retail trade (3.1 million), and services (2.6 million); farm numbers declined by more than 21% and farm size increased by more than 20% from 1959-69; sales of all farm products increased significantly from 1959 to 1969; local and county government expenditures varied from $244 to $372 per capita; unemployment was concentrated in northern Minnesota, Wisconsin, and Michigan; costs of education, highways, and natural resources correlated negatively with population density and represented increasing costs as density declined; concentrations of high income families were found in the industrial areas with low income concentrations in the rural areas. (JC)

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THE STATE OF SOCIAL AND ECONOMIC DEVELOPMENT IN THE NORTH CENTRAL REGION OF THE UNITED STATES

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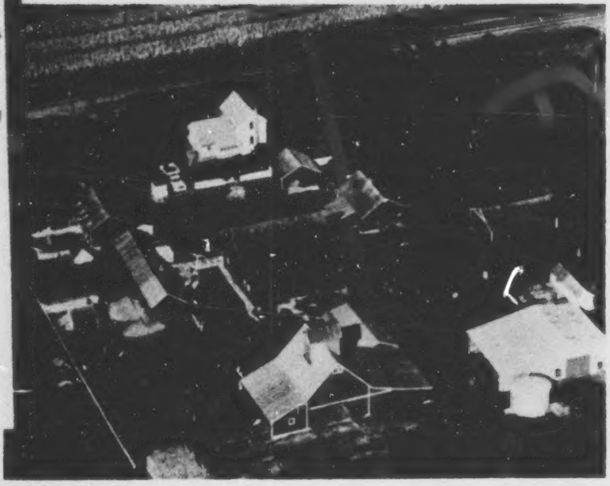

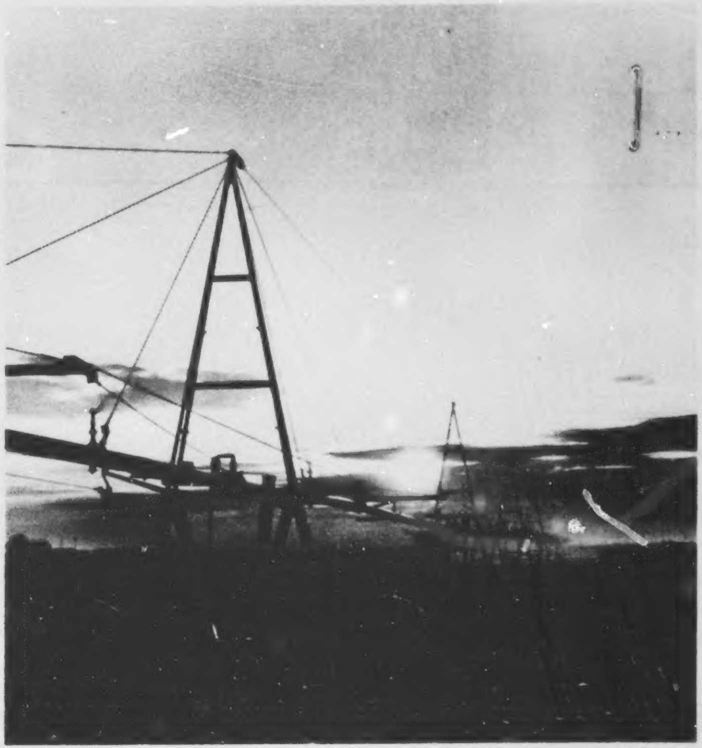

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THE STATE OF
ECONOMIC AND SOCIAL DEVELOPMENT
IN THE
NORTH CENTRAL REGION OF THE UNITED STATES

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The State of
Economic and Social Development
in the
North Central Region of the United States

Introduction

This report serves as an introduction to patterns of economic and social activity in the North Central Region of the United States. It is one of a series of reports sponsored by the North Central Regional Center for Rural Development examining issues in the development of rural Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas. This report surveys population patterns, agricultural activity, local and county government expenditure patterns, and income distribution.

In the decade 1960-70, the North Central Region experienced a population growth rate that was smaller than the national growth rate. Within the region, however, different geographic areas had considerably different rates of population growth. The eastern states of the North Central Region (Ohio, Indiana, Illinois, and Michigan) had a significantly larger population growth than did the western states (North Dakota, South Dakota, Nebraska, and Kansas). Further, the greater increases were in the manufacturing belt extending from northern Illinois, across northern Indiana and southern Michigan, and into northern and central Ohio. The smallest increase, and in some cases decreases, were in the rural farming areas of the four western states. The section of this report dealing with population will examine both the present pattern of population density and the shifts in population density over the past decades.

Like population, business activity in the North Central Region follows certain geographic patterns. Manufacturing, retail trade, and services are the predominate forms of business activity in the region as a whole. Over half of all business employment is found in Ohio, Illinois, and Michigan while the four western states accounted for a much smaller share of business activity. Thus, we have a small geographic area of intense business activity and a much larger area with less than 10 percent of the population engaged in business activity. The nature and distribution of business activity in the North Central Region will be found in the section on business patterns.

Many aspects of agricultural activity in the North Central Region are also closely associated with geographic location. Average farm size, for instance, varies greatly with the smallest farms located in the eastern states of the region and the largest farms in the western states of the region. On the other hand, the value of farm products sold and the real income of farmers have increased throughout the region. Of significance is the continuous decline in the number of farms along with a continuous increase in average farm size. The nature of this situation in the North Central Region is discussed in the section on agriculture activity.

The section on local and county government expenditures examines the type and costs of local and county government services on a county-by-county basis in the North Central Region. This report will show that, although government expenditures for services do not follow geographic lines to the extent that population and business activity do, there is a significant correlation between per capita expenditures and population density. The data indicate a higher cost of providing public services in rural areas.

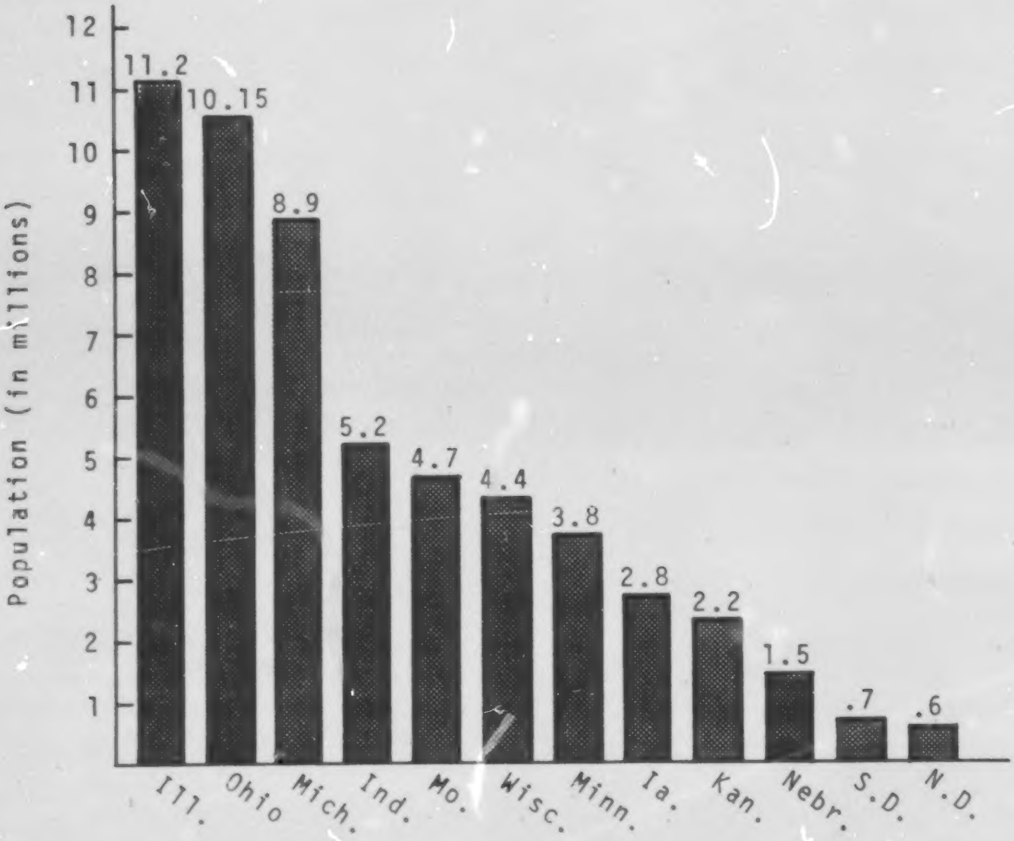
The final section of this report contains a brief overview of income distribution in the North Central Region. Patterns and changes in personal income are discussed. Further, the relationships among income, poverty, employment levels, size of labor force, education, and housing are examined.

Population Distribution

Population trends reflect the economic health of a region. If, on the other hand, a region has fewer jobs than new workers, has declining markets, and fails to provide more than scant social opportunities, it will tend to have a net decrease in population.

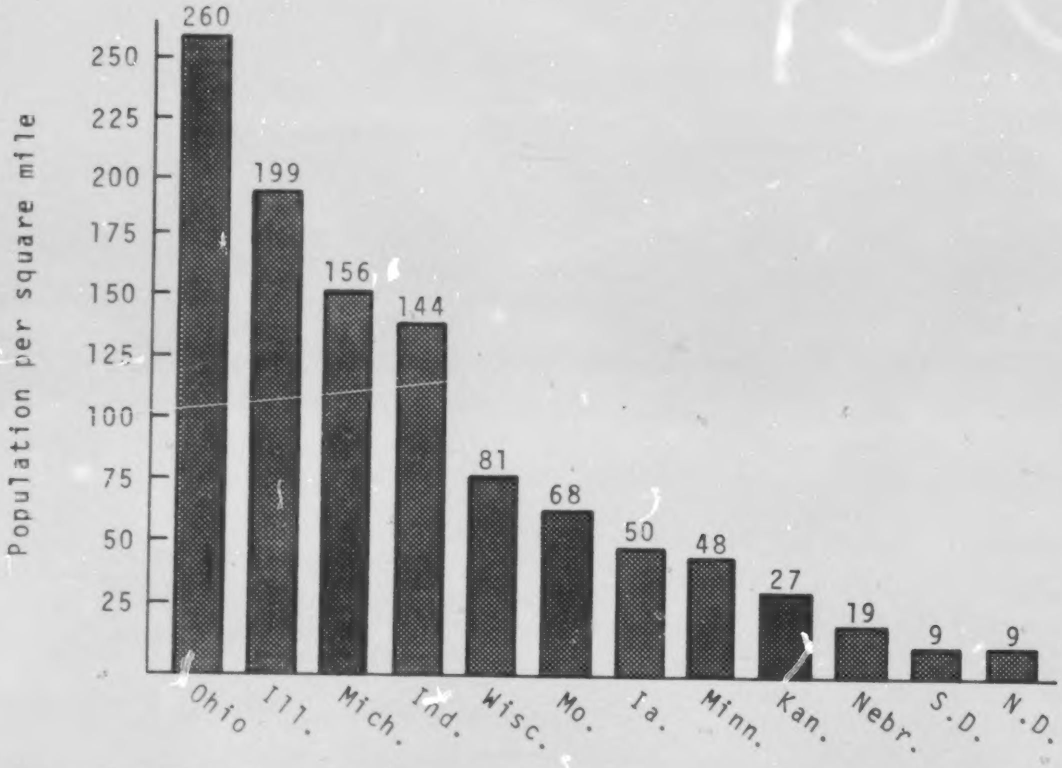
Both the absolute size of the population and changes in the size of the population are important indicators of a region's economy. A densely populated region will have markedly different social and economic structures than will a sparsely populated region. Changes in the size of the population indicate not only the present state but also the future state of a region. Population changes point to future economic changes. Information on population trends, therefore, is of interest to all who are concerned with economic development and social progress.

In 1970, slightly more than 27 percent of the population of the United States lived in the North Central States. The distribution of the people was very uneven. Illinois had the most inhabitants with 11,113,976, while North Dakota had the least with 617,761 (Figure 1). The four eastern states--Ohio, Indiana, Illinois, and Michigan--had the largest population, while the four western states--North Dakota, South Dakota, Nebraska, and Kansas--had the least. The sharp contrast between the eastern and western sections of the region is mirrored in population density. Ohio had the most people per square mile with 259.7, while South Dakota had the least with 8.8 (Figure 2). The great disparity in population concentration can be further illus-



Source: U.S. Census of Population: 1970

FIGURE 1. Population by state in the North Central Region: 1970



Source: U.S. Census of Population: 1970

FIGURE 2. Population density by state in the North Central Region: 1970

trated by noting that Cook County, Illinois, has a larger population than North Dakota, South Dakota, Nebraska, and Kansas combined. Only six counties in North Dakota, South Dakota, Nebraska, and Kansas have a population density greater than Ohio.

Population variation

On the basis of population density, the North Central Region divides into three basic population zones (Figure 3). Zone 1 is a heavily populated region beginning in southeastern Wisconsin and going around Lake Michigan through northeast Illinois, southern Michigan, northern Indiana, and north and central Ohio (Figure 4). The distinguishing feature of Zone 1 is that major population centers are separated by semi-urban or heavily populated rural areas. Only one county in Ohio (Vinton) and one in Indiana (Warren) have a population density of less than 25 persons per square mile. There are several industrial centers in the region: Milwaukee, Chicago, Gary-Hammond, South Bend, Saginaw, Detroit, Indianapolis, Toledo, Cleveland, Youngstown, Columbus, and Cincinnati. The Standard Metropolitan Statistical Areas in Zone 1 account for over 40 percent of the population of the North Central Region. Surrounding these metropolitan areas are counties which are predominantly urban (Figure 5). The number of predominantly rural counties is small.

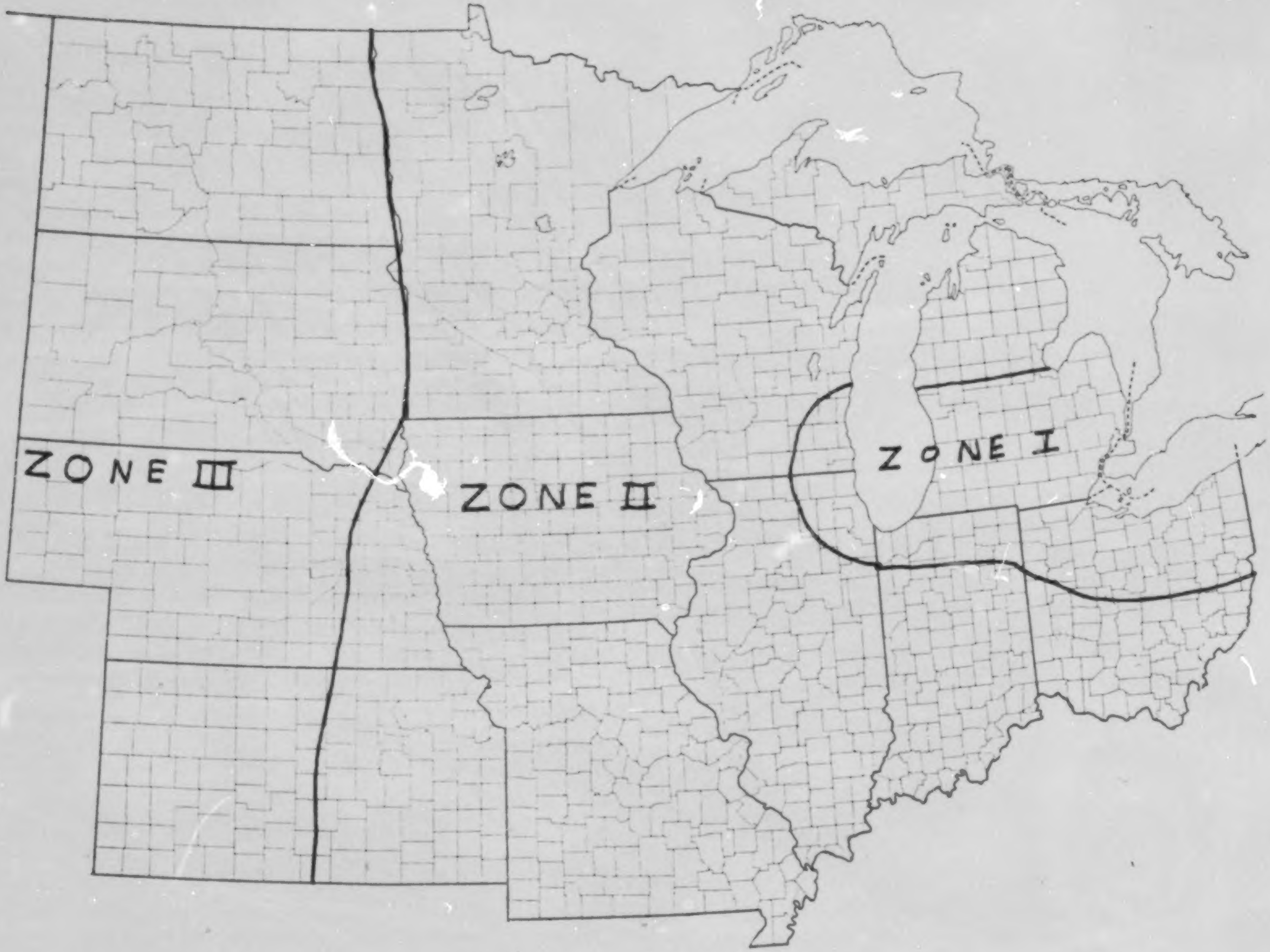
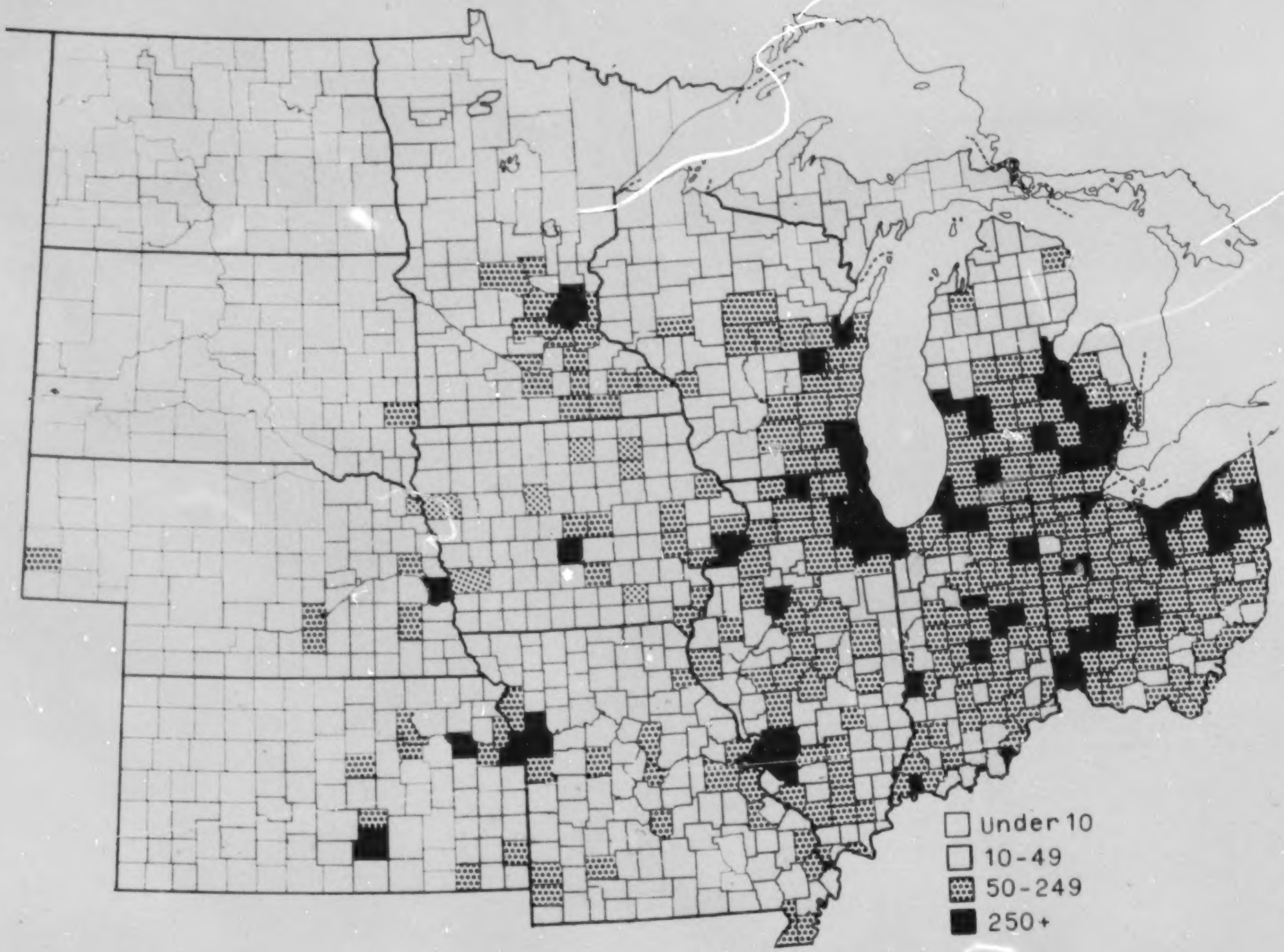
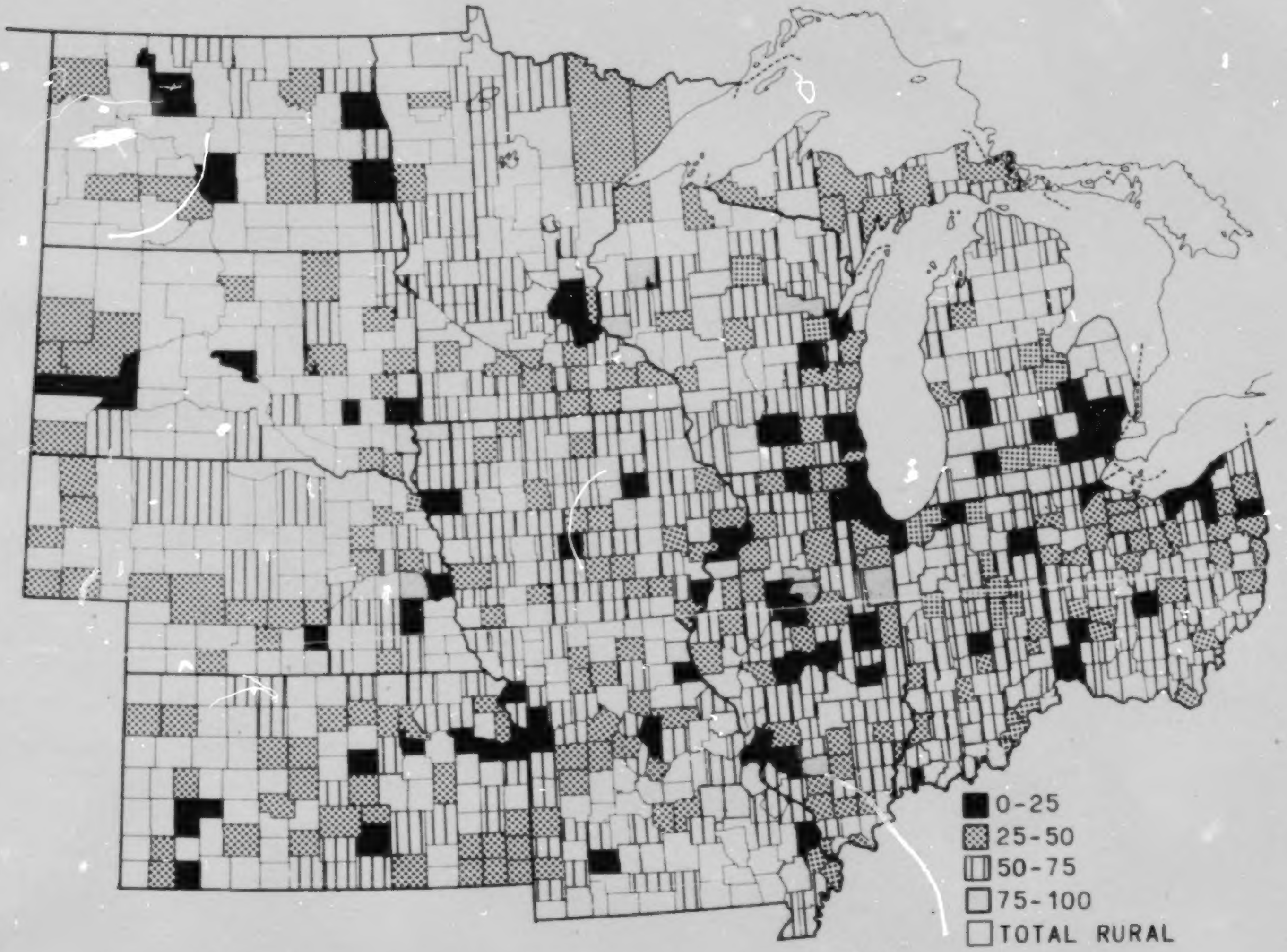


FIGURE 3. General delineation of the population zones of the North Central Region. (See text, the boundary lines are not meant to be precise; they are only approximate for illustrative purposes.)


Under 10
10-49
50-249
250+

Source: U.S. Census of Population: 1970

FIGURE 4: Population per square mile by county in the North Central Region: 1970



■ 0-25
▨ 25-50
▥ 50-75
☐ 75-100
☐ TOTAL RURAL

Source: U.S. Census of Population

FIGURE 5: Percent rural population by county in the North Central Region: 1970

Zone II includes northern Michigan, northern and western Wisconsin, Minnesota, Iowa, Missouri, southern Illinois, southern Indiana, southeastern Ohio, eastern Nebraska, and eastern Kansas. The distinguishing feature of Zone II is that its population centers are separated by rural, sparsely populated areas. In this area, there are numerous major population centers: St. Paul, Omaha-Council Bluffs, Des Moines, Davenport-Rock Island, Kansas City, St. Louis, and Peoria. However, the major population centers are separated primarily by counties with a population density of les than 50 people per square mile. In Zone II, counties which are 75 percent or more rural are common with a majority of counties being at least one-half rural (Figure 5).

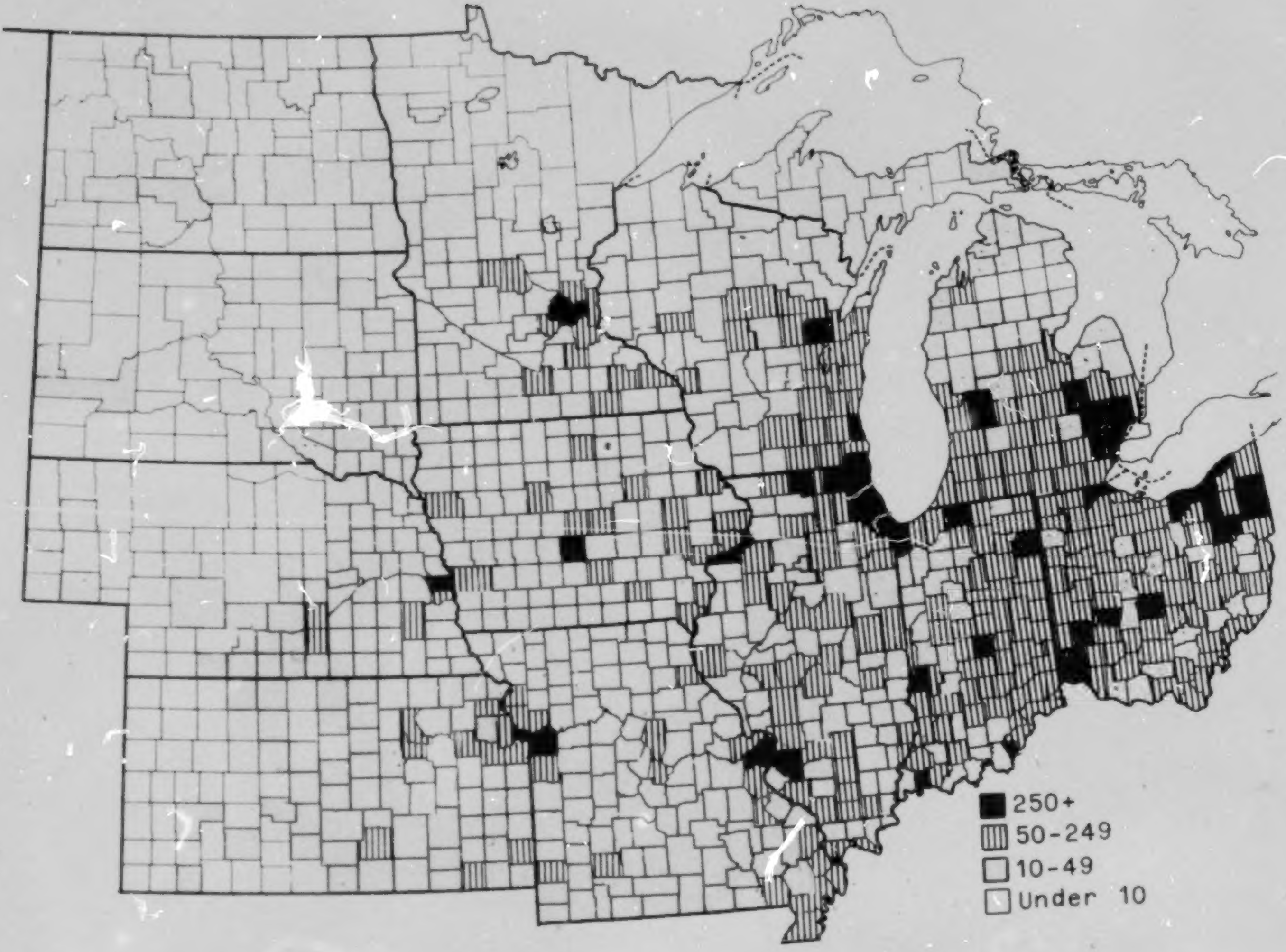
Zone III includes North Dakota, South Dakota, western and central Nebraska, and western and central Kansas. The distinguishing feature of this zone is the absence of large population centers and a very low population density. To be sure there are cities--Minot, Bismarck, Grand Forks, Fargo, Rapid City, Pierre, Sioux Falls, North Platte, Scottsbluff, Grand Island, and Garden City--and the importance of these population centers should not be minimized. In fact, these population centers tend to dominate the surrounding area.

In 1970, the majority of counties in Zone III had a population of less than 10 people per square mile, and only five had a population of greater than 50 per square mile. The number of rural counties is large (Figure 5). Perhaps more surprising is the number of counties that are predominantly urban in nature. This would seem to indicate that the numerous small towns throughout the area are preferable to the outlying regions as places of residence.

Figure 6 indicates the population density for 1950 and has a striking similarity to Figure 4. The less populated areas of Zone II had become even more sparsely populated by 1970, while the densely populated areas of Zone I had become more densely populated.

In summary, Nebraska had the least (Table 1). Ohio was the most densely populated state, and South Dakota was the most sparsely populated. For the North Central Region, the ordering of states with respect to population has remained comparatively static. What changed was the spread between the smallest and largest states.

The population of the North Central Region increased by one-third between 1950 and 1970. This was slightly less than the national growth rate for the same period (Figure 7). Between 1950 and 1960, the growth rate of the North Central States exceeded that of the nation while it fell below the national rate between 1960 and 1970. The eastern part of the region--Ohio, Indiana, Illinois, Michigan, and Wisconsin--grew at a faster rate than the western part--Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, and Kansas.


250+
50-249
10-49
Under 10

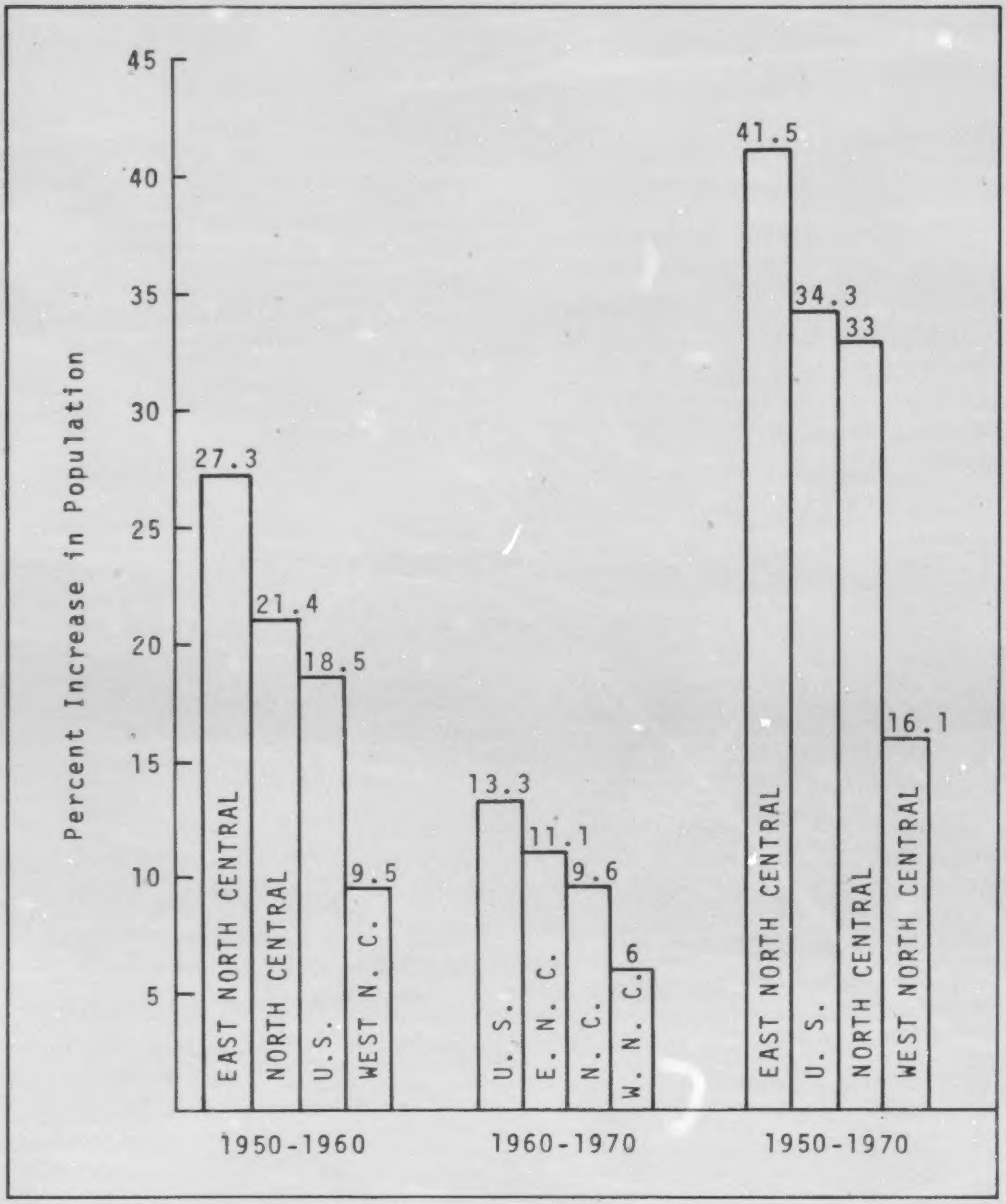
Source: U.S. Census of Population

FIGURE 6: Population per square mile by county in the North Central Region: 1950

Table 1. Population and density by state in the North Central Region: 1950-1970

State	Population			Population/Square Mile		
	1950	1960	1970	1950	1960	1970
Illinois	6,759,271	10,081,158	11,113,976	121.0	180.4	198.9
Indiana	3,934,224	4,662,498	5,193,669	108.7	128.8	143.5
Iowa	2,621,073	2,757,537	2,824,376	46.8	49.2	50.4
Kansas	1,905,299	2,178,611	2,246,578	23.2	26.6	27.4
Michigan	6,371,766	7,823,194	8,875,083	112.2	137.7	156.2
Minnesota	2,982,483	3,413,864	3,804,971	37.6	43.1	48.0
Missouri	3,954,653	4,319,813	4,676,501	57.3	62.6	67.7
Nebraska	1,325,510	1,411,330	1,483,493	17.3	18.4	19.4
N. Dakota	619,636	632,446	617,761	8.9	9.1	8.9
Ohio	7,946,627	9,706,397	10,652,017	193.8	236.7	259.8
S. Dakota	652,740	680,514	665,507	8.6	9.0	8.8
Wisconsin	3,434,575	3,951,777	4,417,731	63.1	72.6	81.1
Total	42,507,857	51,619,139	56,571,663	58.8	68.6	75.2

Source: U.S. Census of Population: 1970



Source: U.S. Census of Population

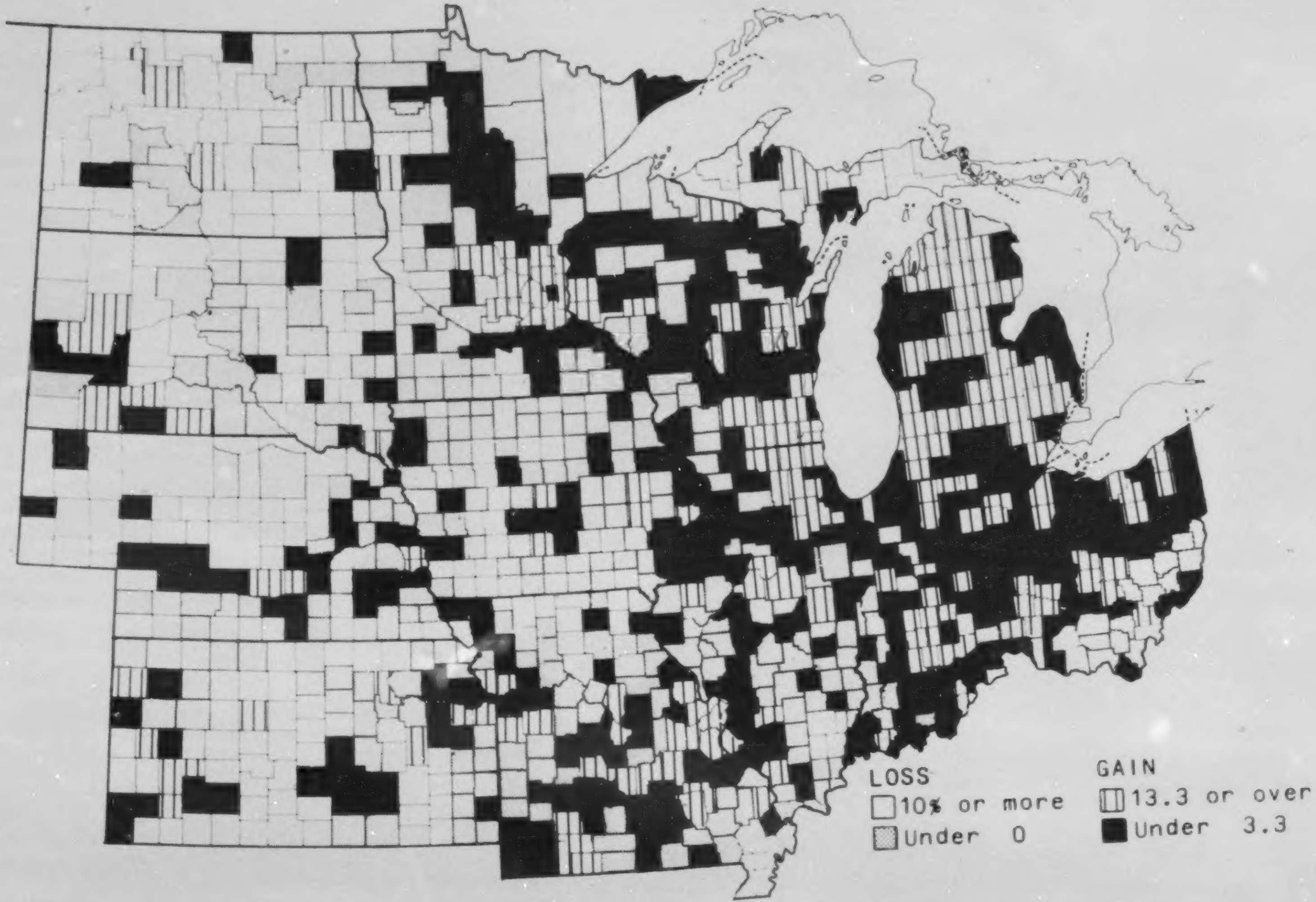
FIGURE 7: Comparative sub-regional population growth rates:1950-1970

In the 20 years after 1950, the eastern section increased by 41.5 percent as compared to 16.1 percent for the west. The east was considerably above the national average; the west was considerably below the national average. In both east and west, the greatest growth rate was between 1950 and 1960.

In the decade 1960-1970, the counties which had the highest growth rates were those in Zone I surrounding Milwaukee, Chicago, Detroit, Indianapolis, Cleveland, Columbus, Cincinnati, and a group of counties in central Michigan (Figure 8). Major metropolitan counties, such as Milwaukee in Wisconsin, Cook in Illinois, Wayne in Michigan, and Cuyahoga in Ohio, had relatively low growth rates. Zone I was the strongest area of the North Central Region with the vast majority of its counties increasing in population--many of them faster than the national average.

Counties in Zone II presented a mixed picture. There were areas of substantial population gain and areas of considerable loss. But the majority of counties in Zone II lost people, with relatively large losses experienced in southern Iowa and northern Missouri.

Zone II experienced considerable population loss over the greater part of its area. Approximately one-half of its counties experienced losses of greater than 10 percent. Sixteen counties showed increases or more than 10 percent; these were associated with major population centers


LOSS
10% or more
Under 0
GAIN
13.3 or over
Under 3.3

Source: U.S. Census of Population

FIGURE 8: Percent change in population by county in the North Central Region: 1960-1970

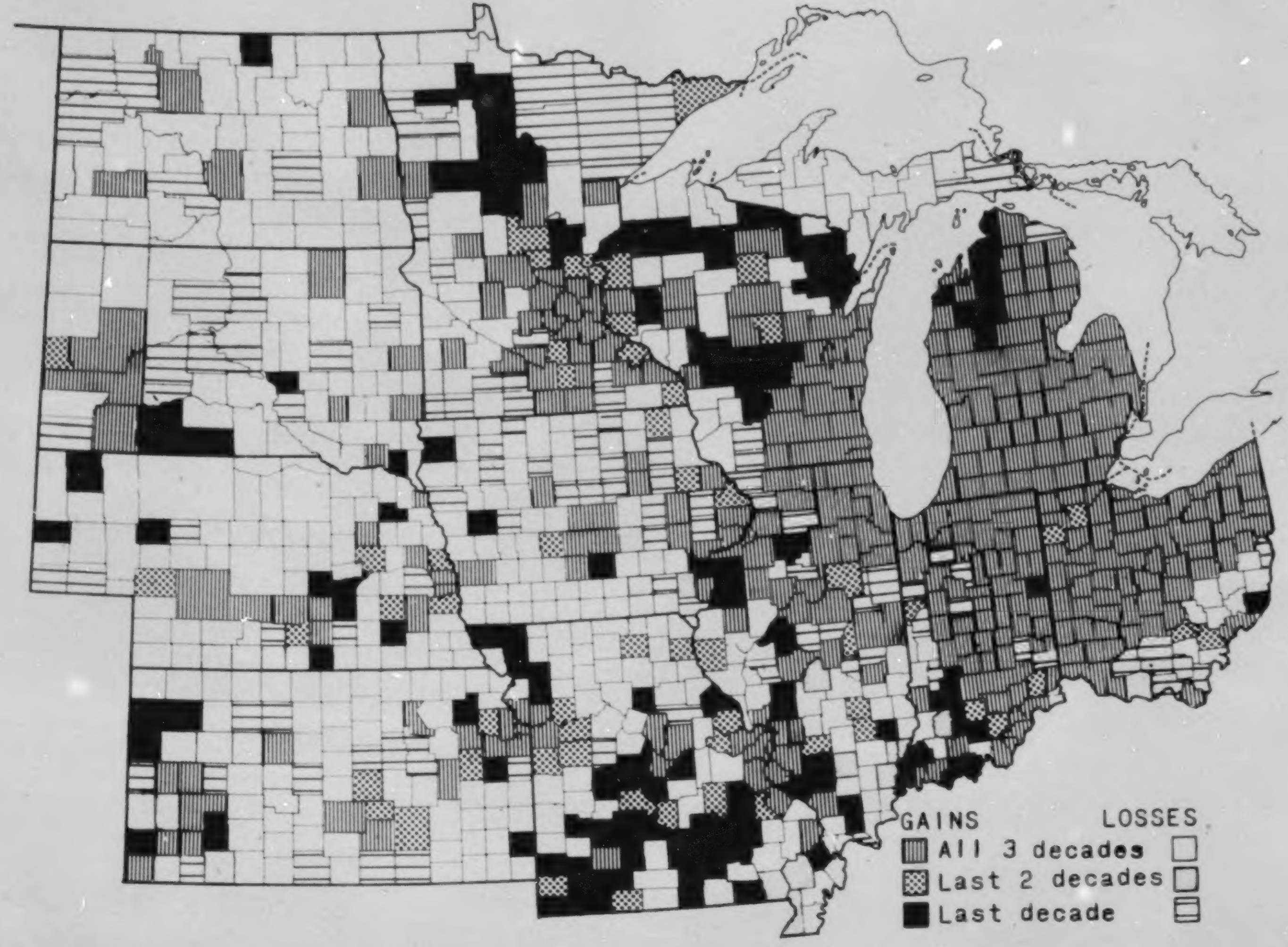
of Zone III (Minot, Pierre, Grand Forks, Rapid City, Yankton, Grand Island, and Garden City). Zone III experienced the greatest population loss in the North Central States.

The decade of 1960-1970 mirrors a process which has been in progress for the past 30 years (Figure 9). Zone I has consistently gained population, most of Zone II has experienced consistent decline. In Zone II, population centers such as Minneapolis-St. Paul and Des Moines have consistently gained while the rural areas have consistently declined. Zone I is now experiencing its largest population, while many areas of Zones II and III had their largest population in the Nineteenth Century.

The trend in population migration in the North Central Region has been from rural areas to urban and from west to east. Large areas are facing problems brought about by having too few people while other areas are facing the immense problem of highly populated urban regions. Population movement has created difficulties in both areas.

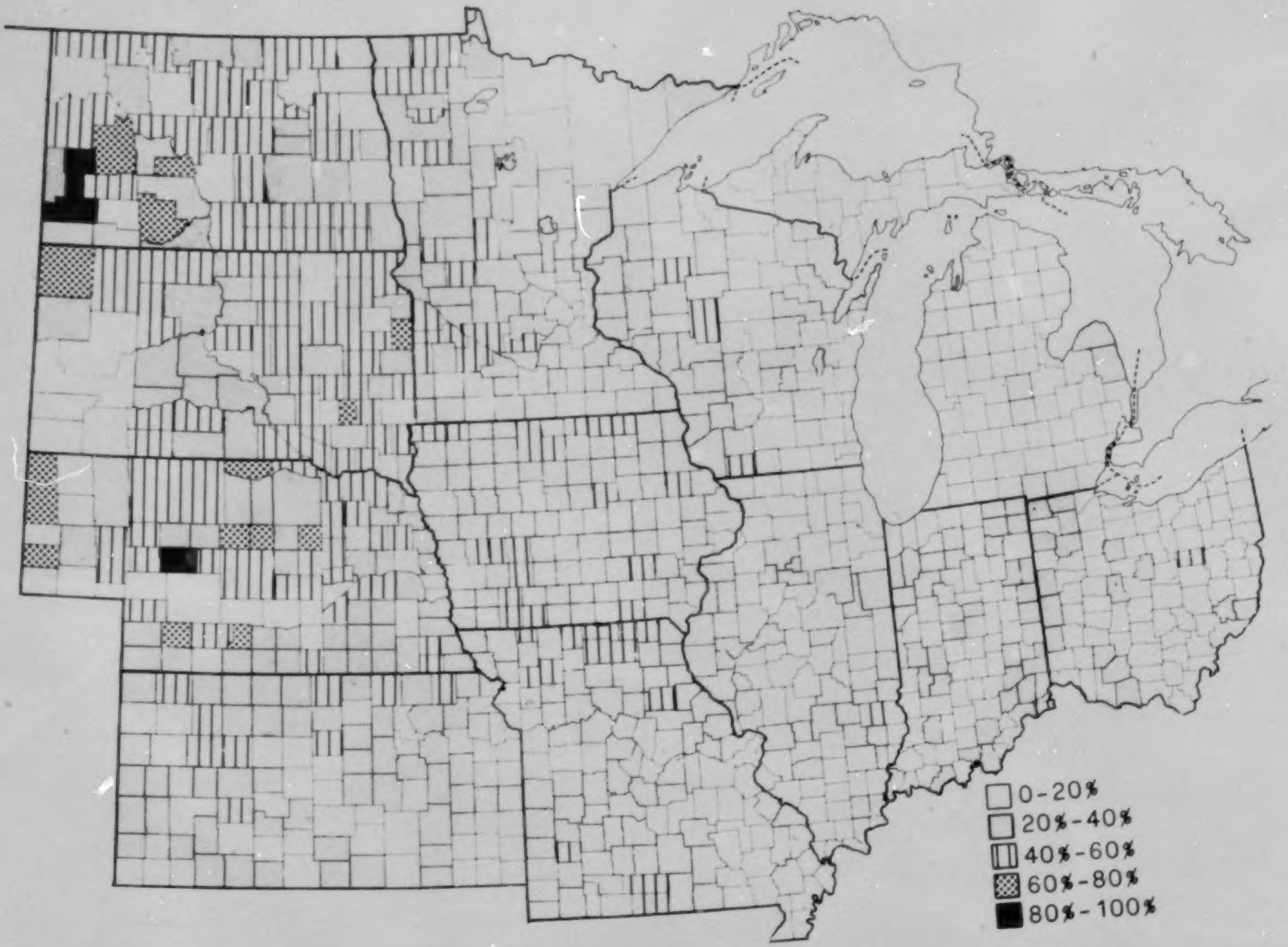
Rural urban population distributions

Figure 10 shows the classifications of counties in the North Central Region by percentage of the population which is rural and involved in agriculture--i.e., the farm population. Each of the 12 states has several counties where less than 20


GAINS
LOSSES
All 3 decades
Last 2 decades
Last decade

Source: U.S. Census of Population

FIGURE 9: Population trends by county in the North Central Region: 1940-1970


0-20%
20%-40%
40%-60%
60%-80%
80%-100%

Source: U.S. Census of Population

FIGURE 10: Counties of the North Central Region classified by percentage of rural farm population: 1970

percent of the population is rural-farm, but only three counties (Billings and Slope in North Dakota and McPherson in Nebraska, all west of the Missouri River) have more than 90 percent rural-farm population. East of the Mississippi River, there are only six counties with more than 40 percent rural farm population and none over 60 percent. Although there are a number of counties with 20-40 percent rural farm population, the number with less than 20 percent rural farm population greatly surpasses those with more than 20 percent. Between the Mississippi and Missouri Rivers there are several counties with 40-60 percent rural-farm population, but again there are none with more than 60 percent. Between the two major rivers, however, the counties between 20 and 40 percent rural-farm population far outnumber those with less than 20 percent.

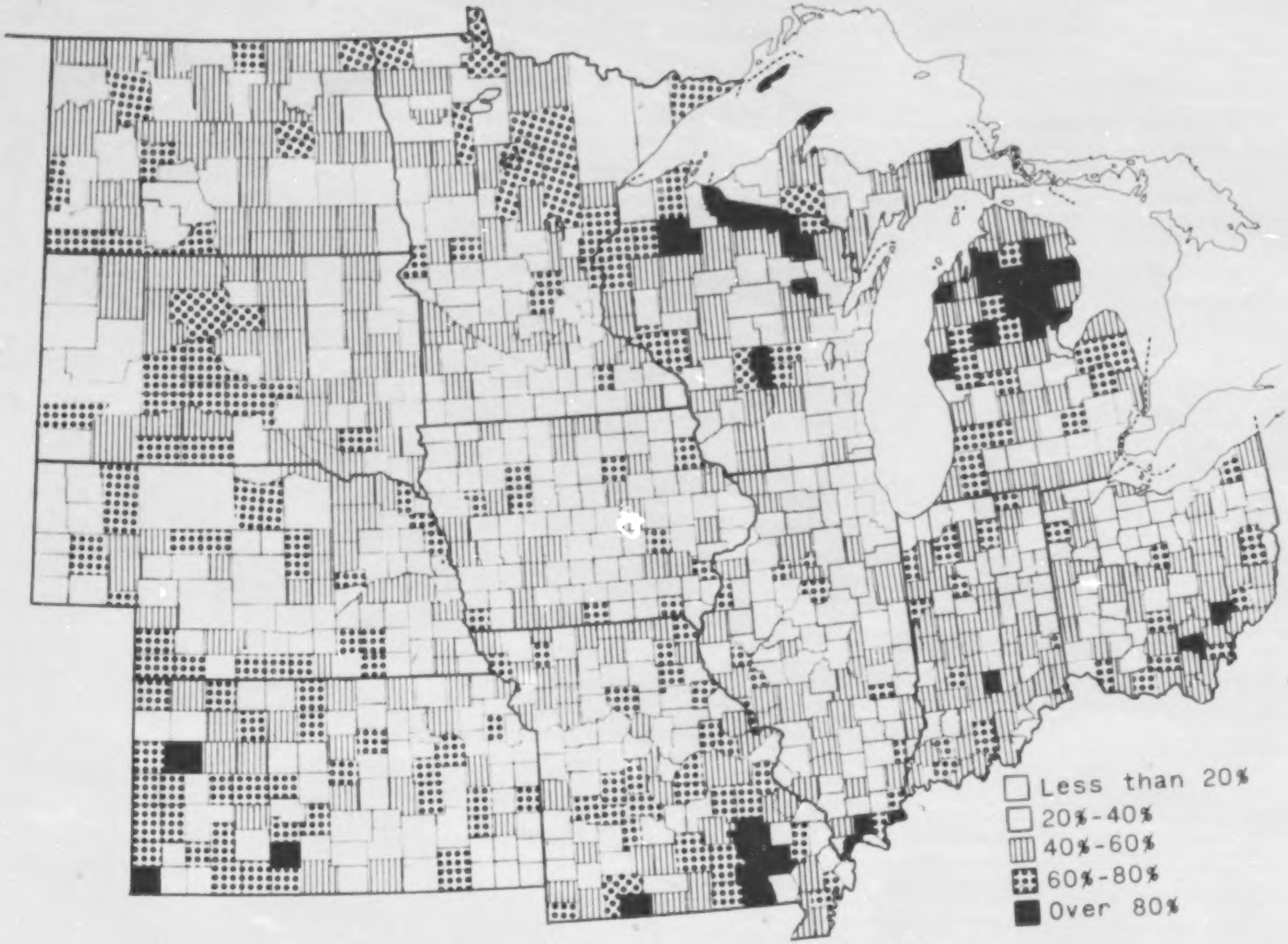
In contrast, west of the Missouri River there are three counties with more than 80 percent rural-farm population plus 15 more with 60-80 percent rural-farm population (three each in North and South Dakcta and nine in Nebraska). The number of counties with less than 20 percent rural-farm population are relatively few, with the majority of the counties having 20-60 percent rural-farm population--about an equal number in the 20-40 percent and the 40-60 percent groups.

In general, counties have higher and higher percentages of rural-farm residents as one crosses the region from east to west. For this reason, if the problems of providing reasonably priced services is associated with sparsely populated rural areas, the problems are more acute in the four western states and moderate in the three central states located between the Missouri and Mississippi Rivers.

Economic and social problems in rural areas

The major rural problem group, in terms of programs which are currently available, is the rural-nonfarm group. There are 37 counties in the North Central Region which have more than 80 percent rural-nonfarm population. All but 9 of these (3 in Kansas and 6 in Missouri) are east of the Mississippi River as shown in Figure 11. All states have only a few counties with less than 20 percent rural-nonfarm population, and many counties have 20-60 percent rural-nonfarm. Each state also has a number of counties with 60-80 percent rural-nonfarm population.

There is no set pattern for the concentration of rural-nonfarm population as there is with rural-farm population. Instead, each state has several counties over 80 percent rural farm population. In nearly all states a majority of counties have more than 40 percent rural-nonfarm population. Consequently, the problem of bringing development to the rural-nonfarm people is not a problem for only a few of the states or selected areas of the states. Bringing the benefits of development to rural-nonfarm people is a widespread prob-


Less than 20%
20%-40%
40%-60%
60%-80%
Over 80%

Source: U.S. Census of Population

FIGURE 11: Counties of the North Central Region classified by percentage of rural-nonfarm population: 1970

lem over all of the states of the region. Although a majority of the counties have more than 50 percent rural population, only two states (North and South Dakota) have more than 50 percent rural population (Table 2). This does not, however, reduce the scope of the problem to provide a better quality of life to rural people through development. It simply implies that a few urban counties in each state dominate the total population.

Business Patterns in the North Central Region[1]

In 1969, approximately 16 million persons were employed in business activities in the North Central States (Table 3). Manufacturing employed over 6.5 million persons, accounting for over 40 percent of this 16 million. Next in importance (in terms of employment) were retail trade with 19 percent of all employed and services with 16 percent of all employed. Agricultural services, forestry, fishery, and mining played a minor role. Combined, they accounted for less than 1 percent

---

[1] The section on business activity in the North Central Region is based on data in County Business Patterns published by the U.S. Commerce Department. Business activity is defined to include all nonfarm commercial and industrial activities and nonprofit organizations covered by the OASDI program. Thus, it does not include certain occupational groups: farm workers, domestic workers, members of the armed forces, federal civilian employees, employees of state and local government, and self-employed persons. The data is based on employers' reports for the first quarters of 1959 and 1969.

Table 2. Percent rural population by state in the North Central Region: 1970

State	Rural-farm	Rural-nonfarm	All rural
Ohio	4.7	19.9	24.6
Indiana	9.0	26.1	35.1
Illinois	4.5	12.5	17.0
Michigan	4.4	21.7	26.1
Wisconsin	10.9	23.2	34.1
Minnesota	12.8	20.8	33.6
Iowa	18.9	23.8	42.7
Missouri	8.8	21.2	20.0
North Dakota	25.3	30.4	55.7
South Dakota	25.2	30.2	55.4
Nebraska	16.7	21.7	38.4
Kansas	11.3	22.7	34.0

Source: U.S. Census of Population: 1970

Table 3. Business employment, payroll, and number of units in the North Central Region: First quarter, 1969

	Employment		Payroll		Units	
	Number	Percent	Dollars[1]	Percent	Number	Percent
Agricultural Services, Forestry, Fisheries	37,720	0.2	37,971	0.1	7,629	0.8
Mining	101,602	0.6	198,418	0.7	5,159	0.5
Contract Construction	801,462	4.9	1,670,561	6.2	83,783	8.7
Manufacturing	6,610,158	40.5	13,209,074	48.7	80,922	8.4
Transportation and Utilities	952,651	5.9	1,855,929	6.8	36,845	3.8
Wholesale Trade	1,111,357	6.8	2,183,847	8.1	83,551	8.6
Retail Trade	3,122,428	19.1	3,480,473	12.8	299,264	30.9
Financial Services	887,134	5.4	1,415,966	5.2	92,529	9.6
Services	2,693,548	16.5	3,016,186	11.1	257,112	26.6
Unclassified	8,572	0.1	88,688	0.3	20,421	2.1
Total	16,326,632	100.0	27,157,113	100.0	967,215	100.0

Source: County Business Patterns

[1] In thousands of dollars

of business employment.

In the first quarter of 1969, a total of 967,215 business units provided a payroll of more than 27 billion dollars (Table 3). Manufacturing accounted for almost one-half of the payroll. Retail trade and services were a distant second and third, emphasizing the importance of manufacturing in generating income. Agricultural services, forestry, fisheries, and mining supplied only a small percentage of the region's payroll. Because they contain relatively small units, retail trade and services furnished the most business units in the region. Manufacturing, with its dominance in employment and payroll, had only slightly more than 8 percent of all business units. Mining accounted for only 0.5 percent of business units.

A close correlation exists between the amount of business activity in an area and the size of the area's population. It is not surprising, therefore, to find widely different levels of business activity in different states of the North Central Region. In terms of employment, the four easternmost states had the most activity while the four westernmost had the least (Table 4). In 1969 Illinois had the most workers with over 3.5 million employed, followed by Ohio, Michigan, and Indiana. On the other hand, North Dakota had just over 100,000 employed and Kansas had slightly more than one-half million. The ordering of states in terms of em-

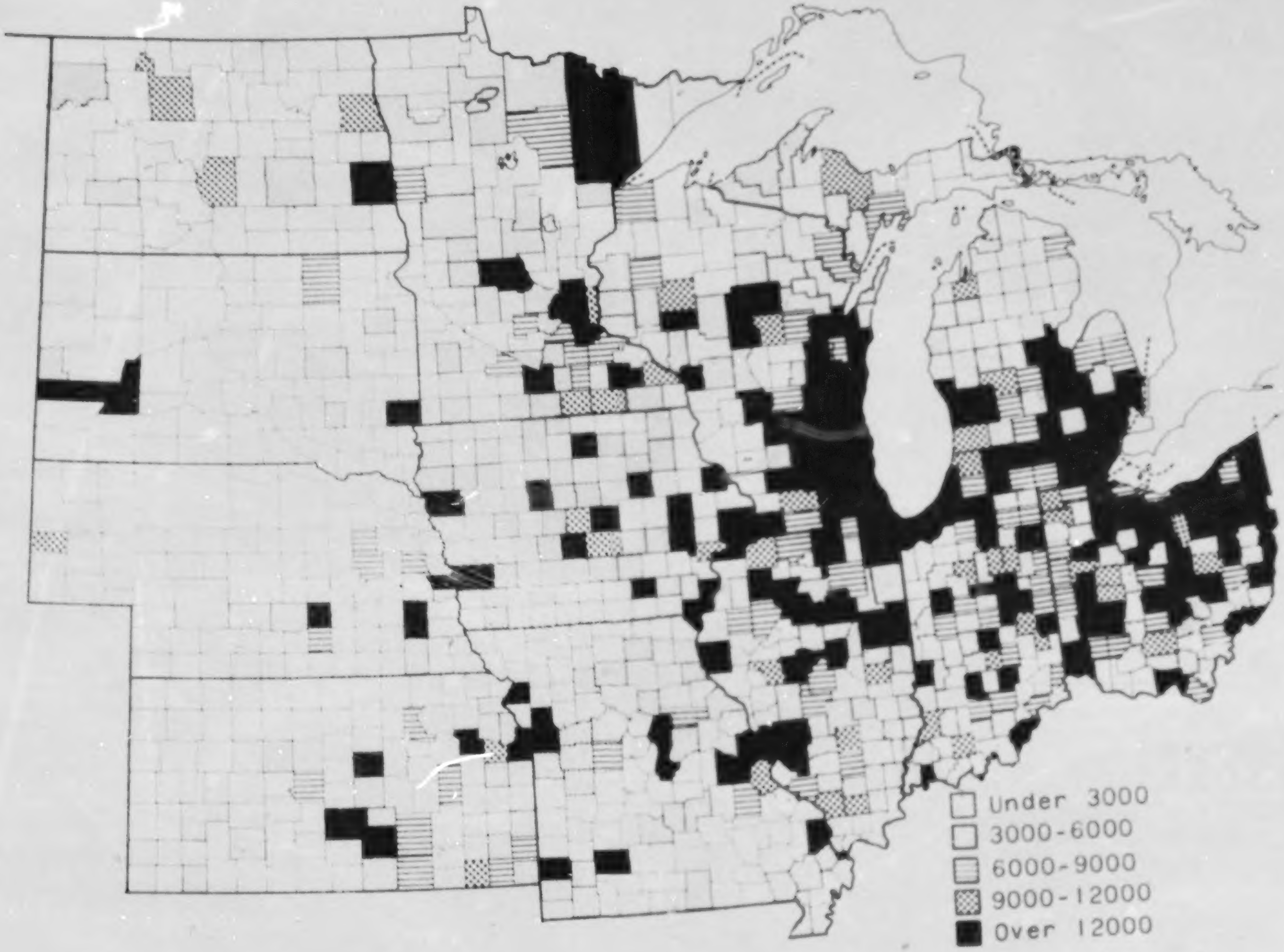
Table 4. Business employment by state in the North Central Region: 1959 and 1969

	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	2,536,613	3,247,406	710,793	28.0	20.4	19.9
Indiana	1,149,164	1,531,534	382,370	33.3	9.3	9.4
Illinois	2,858,624	3,633,956	775,332	27.1	23.0	22.3
Michigan	1,863,177	2,552,050	688,873	37.0	15.0	15.6
Wisconsin	923,950	1,216,231	292,281	31.6	7.4	7.4
Minnesota	707,875	1,016,892	309,017	43.7	5.7	6.2
Iowa	513,617	668,843	155,226	30.2	4.1	4.1
Missouri	1,057,474	1,389,750	332,276	31.4	8.5	8.5
North Dakota	80,201	100,642	20,441	25.5	0.6	0.6
South Dakota	86,555	112,719	26,164	30.2	0.7	0.7
Nebraska	257,775	354,251	96,476	37.4	2.1	2.2
Kansas	401,500	502,358	100,858	25.1	3.2	3.1
Total	12,436,525	16,326,632	3,890,107	31.3	100.0	100.0

Source: *County Business Patterns*

ployment in business follows the ordering of states in terms of population.

If employment is analyzed at the county level, its correspondence with population becomes more apparent (Figure 12). There is a major concentration of business activity in an area extending from southeastern Wisconsin, through northeastern Illinois; across northern Indiana and southern Michigan, and into northern and central Ohio--i.e., the western end of the manufacturing belt. This area is marked by contiguous counties with high business activities and includes several large cities: Milwaukee, Chicago, Gary, Detroit, Toledo, and Cleveland. To the west and south, including northwest Wisconsin, Minnesota, Iowa, Missouri, southern Illinois, southern Indiana, and southern Ohio, is an area marked by scattered islands of high business activity surrounded by large regions with relatively minor activity. Included are several metropolitan centers: Minneapolis-St. Paul, Omaha-Council Bluffs, Des Moines, Davenport-Rock Island, Kansas City, and St. Louis. These metropolitan areas are surrounded by predominantly rural, agricultural counties. Finally, there are the plains of North Dakota, South Dakota, Nebraska, and western Kansas. This area has scattered counties with modest levels of business activity and a very large area with minimal business activity.


☐ Under 3000
☐ 3000-6000
▤ 6000-9000
▨ 9000-12000
■ Over 12000

Source: County Business Patterns

FIGURE 12: Business employment by county in the North Central Region: 1969

It would seem desirable to examine each industry in turn in order to determine its areas of concentration in the North Central Region. For each industry, however, there is a remarkable relationship between its level of activity and population (Table 5). From 1-2 percent of the population of each state is engaged in contract construction, 1-2 percent in transportation and public utilities, 2 percent in wholesale trade, 5 or 6 percent in retail trade, 1-2 percent in financial services, and 4 or 5 percent in services. With the exception of manufacturing, these figures are also remarkably consistent on the county level and seem to indicate that a certain proportion of a population will be found in certain industries.

Manufacturing is the major variable. Table 5 indicates that the percentage of population engaged in manufacturing increases with population. This is borne out in Figure 13 which gives the percentage of the population employed in manufacturing. The information in Figure 12 and the population data presented earlier indicate that manufacturing is the key to business activity and population size.

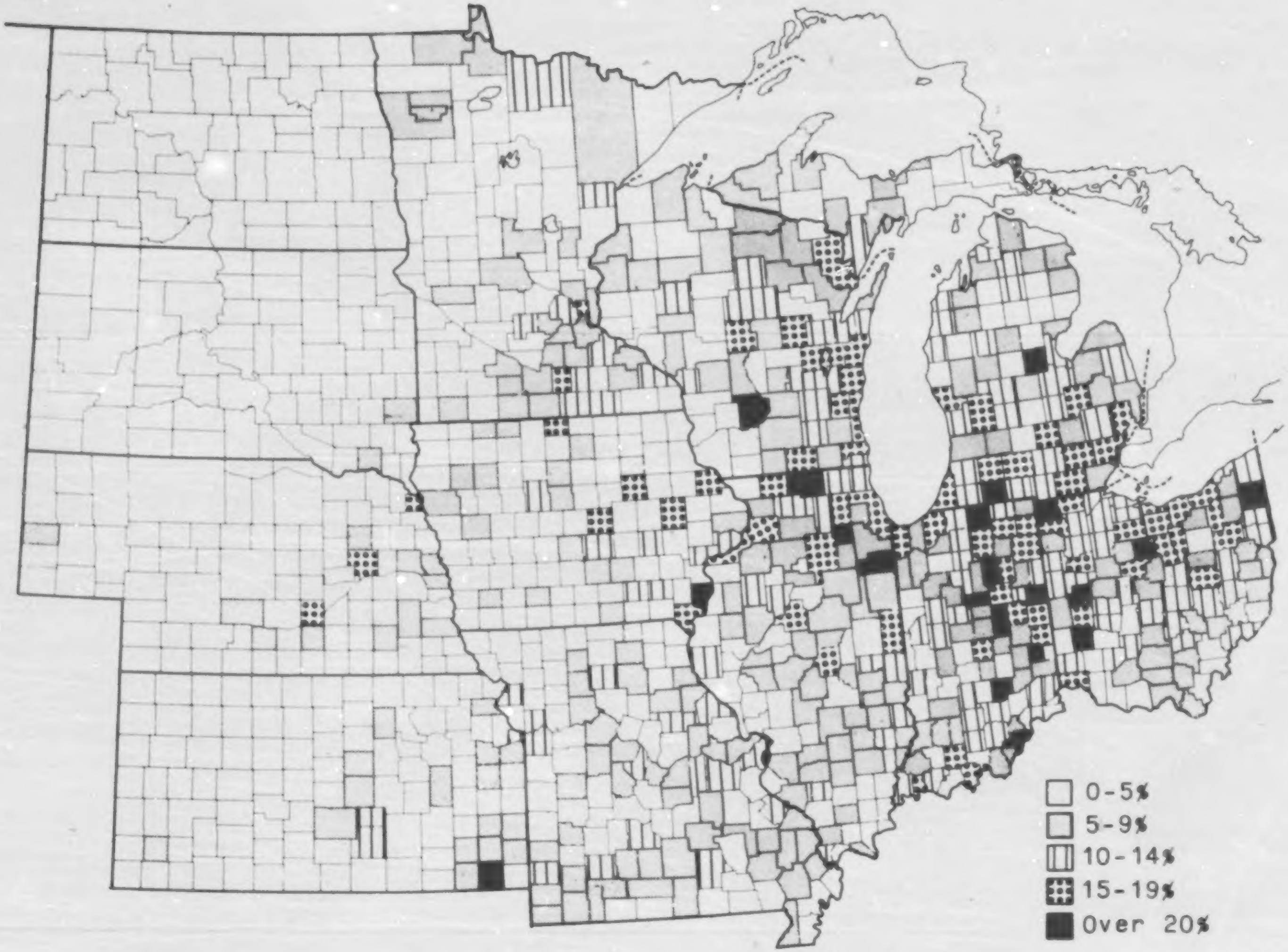
Each state had its own business composition in 1969, due primarily to the relative importance of manufacturing (Table 6). In the four eastern states--Ohio, Indiana, Illinois, Michigan--manufacturing is of dominant importance. Second in importance is retail trade and services. Third is contract

Table 5. Percentage of total population of the North Central Region employed in business, by industry: 1969

	Mining	Contract Construction	Manufacturing	Transportation and Utilities	Wholesale Trade	Retail Trade	Financial Services	Services
Ohio	a/	1	14	2	2	5	1	5
Indiana	a/	2	14	1	2	5	1	4
Illinois	a/	2	13	2	3	6	2	5
Michigan	a/	1	14	1	2	5	1	4
Wisconsin	a/	1	12	1	2	6	1	4
Minnesota	a/	1	9	2	2	6	2	5
Iowa	a/	1	8	1	2	6	1	4
Missouri	a/	2	10	2	2	6	2	5
North Dakota	a/	1	1	1	2	5	1	4
South Dakota	a/	1	2	1	2	5	1	4
Nebraska	a/	1	6	2	2	6	2	5
Kansas	a/	1	7	1	2	5	1	4

Source: *County Business Patterns* and Census of Population

a/ Less than one percent


0-5%
5-9%
10-14%
15-19%
Over 20%

Source: *County Business Patterns*

FIGURE 13: Percent of population of the North Central Region employed in manufacturing: 1969

Table 6. Business employment in the North Central Region by industry and state: 1959 and 1969

(Ohio)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	4,374	0.2	5,732	0.2
Mining	20,809	0.8	19,077	0.6
Contract Construction	112,092	4.4	153,815	4.8
Manufacturing	1,248,192	49.2	1,471,195	45.3
Transportation and Utilities	141,508	5.6	173,756	5.4
Wholesale Trade	158,067	6.2	195,199	6.0
Retail Trade	436,796	17.2	576,204	17.7
Financial Services	109,829	4.3	149,957	4.6
Services	298,148	11.8	488,623	15.0
Unclassified	6,798	0.3	13,848	0.4
TOTAL	2,536,613	100.0	3,247,406	100.0

(Indiana)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	2,400	0.2	3,061	0.2
Mining	9,407	0.8	6,768	0.4
Contract Construction	51,146	4.5	80,016	5.2
Manufacturing	576,174	50.2	729,214	47.6
Transportation and Utilities	63,447	5.5	75,787	5.0
Wholesale Trade	65,700	5.7	87,020	5.7
Retail Trade	205,975	17.9	280,161	18.3
Financial Services	54,129	4.7	73,676	4.8
Services	114,475	10.0	189,044	12.3
Unclassified	6,311	0.5	6,787	0.5
TOTAL	1,149,164	100.0	1,531,534	100.0

(Illinois)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	4,086	0.1	5,923	0.2
Mining	26,591	0.9	20,823	0.6
Contract Construction	141,140	4.9	176,027	4.8
Manufacturing	1,202,618	42.1	1,419,614	39.1
Transportation and Utilities	202,581	7.1	231,183	6.3
Wholesale Trade	222,011	7.8	279,650	7.7
Retail Trade	481,854	16.9	656,599	18.1
Financial Services	179,017	6.3	226,011	6.2
Services	387,577	13.5	600,224	16.5
Unclassified	11,149	0.4	17,902	0.5
TOTAL	2,858,624	100.0	3,633,956	100.0

Source: *County Business Patterns*

Table 6. Continued

(Michigan)	Employment: 1958		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	2,253	0.1	4,457	0.2
Mining	12,872	0.7	11,140	0.4
Contract Construction	72,062	3.9	111,605	4.4
Manufacturing	959,108	51.4	1,198,536	47.0
Transportation and Utilities	95,961	5.2	127,829	5.0
Wholesale Trade	110,427	5.9	149,583	5.9
Retail Trade	310,845	16.7	449,798	17.6
Financial Services	76,619	4.1	112,844	4.4
Services	216,686	11.6	375,323	14.7
Unclassified	6,344	0.4	10,935	0.4
TOTAL	1,863,177	100.0	2,552,050	100.0

(Wisconsin)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	1,960	0.2	3,361	0.3
Mining	2,860	0.3	2,644	0.2
Contract Construction	41,569	4.5	57,178	4.7
Manufacturing	446,807	48.3	518,660	42.6
Transportation and Utilities	49,495	5.4	63,437	5.2
Wholesale Trade	56,276	6.1	70,194	5.8
Retail Trade	172,392	18.7	244,153	20.1
Financial Services	42,033	4.6	58,243	4.8
Services	108,562	11.7	193,825	15.9
Unclassified	1,996	0.2	4,536	0.4
TOTAL	923,950	100.0	1,216,231	100,0

(Minnesota)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	2,513	0.4	2,698	0.3
Mining	15,062	2.1	13,104	1.3
Contract Construction	40,142	5.7	55,751	5.5
Manufacturing	219,298	31.0	323,369	31.7
Transportation and Utilities	50,239	7.1	63,401	6.2
Wholesale Trade	69,466	9.8	78,828	7.8
Retail Trade	152,283	21.5	216,483	21.3
Financial Services	46,280	6.5	61,968	6.1
Services	108,635	15.3	195,709	19.2
Unclassified	3,957	0.6	5,581	0.6
TOTAL	707,875	100.0	1,016,892	100.0

Table 6. Continued

(South Dakota)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	545	0.6	962	0.8
Mining	2,518	2.9	2,442	2.2
Contract Construction	6,191	7.2	6,355	5.6
Manufacturing	12,749	14.7	15,779	14.0
Transportation and Utilities	7,244	8.4	8,679	7.7
Wholesale Trade	9,759	11.3	10,765	9.6
Retail Trade	26,338	30.4	32,903	29.2
Financial Services	5,398	6.2	7,390	6.6
Services	14,958	17.3	26,512	23.5
Unclassified	855	1.0	932	0.8
TOTAL	86,555	100,0	112,719	100.0

(Nebraska)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	1,193	0.5	1,610	0.5
Mining	2,339	0.9	1,486	0.4
Contract Construction	17,426	6.8	21,537	6.1
Manufacturing	59,472	23.0	85,518	24.1
Transportation and Utilities	19,858	7.7	23,639	6.7
Wholesale Trade	25,801	10.0	31,523	8.9
Retail Trade	65,669	25.5	87,526	24.7
Financial Services	21,427	8.3	28,093	7.9
Services	42,570	16.5	71,244	20.1
Unclassified	2,020	0.8	2,075	0.6
TOTAL	257,775	100.0	354,251	100.0

(Kansas)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	1,087	0.3	2,554	0.5
Mining	16,527	4.1	10,705	2.1
Contract Construction	33,653	8.4	29,670	5.9
Manufacturing	118,294	29.5	147,789	29.4
Transportation and Utilities	31,612	7.9	33,535	6.7
Wholesale Trade	31,217	7.8	37,451	7.5
Retail Trade	91,804	22.9	118,583	23.6
Financial Services	21,464	5.3	29,053	5.8
Services	53,603	13.3	89,614	17.8
Unclassified	2,239	0.5	3,404	0.7
TOTAL	401,500	100.0	502,358	100.0

Table 6. Continued

(Iowa)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	2,355	0.5	3,482	0.5
Mining	2,741	0.5	2,778	0.4
Contract Construction	26,680	5.2	33,501	5.0
Manufacturing	176,322	34.3	219,068	32.8
Transportation and Utilities	37,004	7.2	38,352	5.7
Wholesale Trade	45,133	8.8	46,969	7.0
Retail Trade	120,214	23.4	159,785	23.9
Financial Services	29,945	5.8	41,610	6.2
Services	70,723	13.8	118,947	17.8
Unclassified	2,500	0.5	4,351	0.7
TOTAL	513,617	100.0	668,843	100.0

(Missouri)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	3,177	0.3	3,427	0.3
Mining	8,438	0.8	8,752	0.6
Contract Construction	57,517	5.5	69,976	5.0
Manufacturing	379,279	35.9	473,251	34.0
Transportation and Utilities	84,745	8.0	104,905	7.6
Wholesale Trade	97,597	9.2	111,768	8.0
Retail Trade	204,339	19.3	269,837	19.4
Financial Services	66,985	6.3	91,332	6.6
Services	146,585	13.9	248,859	17.9
Unclassified	8,812	0.8	7,643	0.6
TOTAL	1,057,474	100.0	1,389,750	100.0

(North Dakota)	Employment: 1959		Employment: 1969	
	Number	Percent	Number	Percent
Forestry, Fisheries, Ag.	169	0.2	453	0.5
Mining	2,571	3.2	1,883	1.8
Contract Construction	5,842	7.3	6,031	6.0
Manufacturing	6,522	8.1	8,165	8.1
Transportation and Utilities	6,808	8.5	8,148	8.1
Wholesale Trade	10,416	13.0	12,407	12.3
Retail Trade	26,491	33.0	30,396	30.2
Financial Services	5,115	6.4	6,957	6.9
Services	15,529	19.4	25,624	25.5
Unclassified	738	0.9	578	0.6
TOTAL	80,201	100.0	100,642	100.0

construction, transportation and utilities, wholesale trade, and financial services. In the four central states--Wisconsin, Minnesota, Iowa, Missouri--manufacturing also predominated but by a smaller margin. In this area, retail trade and services increased in relative importance. In the four plains states--North Dakota, South Dakota, Nebraska, Kansas--manufacturing is not the dominant activity and is rivaled by retail trade and services.

As measured by employment, business activity in the North Central Region increased more than 30 percent in the decade 1959-1969 (Table 4). Minnesota measured the largest percentage gain, increasing by more than 43 percent. Minnesota was followed by Nebraska and Michigan with 37 percent. Kansas measured the smallest percentage increase with just over 25 percent. In absolute terms, the largest gains were made by Illinois, Ohio, and Michigan while the smallest gains were made by North Dakota and South Dakota. Michigan, Indiana, and Minnesota increased their relative shares of employment, albeit by small amounts. Ohio, Illinois, and Kansas slightly decreased their shares.

Changes in activity also varied greatly among industries (Table 7). Employment in the service industry increased by more than 75 percent while employment in mining declined. Retail trade and financial services increased by 36 percent and 34 percent respectively. Agriculture, forestry,

Table 7. Business employment in the North Central Region by state and industry: 1959 and 1969

(Agriculture, Forestry, Fisheries)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	4,374	5,732	1,358	31.0	16.8	15.2
Indiana	2,400	3,061	661	27.5	9.2	8.1
Illinois	4,086	5,923	1,837	45.0	15.7	15.7
Michigan	2,253	4,457	2,204	97.8	8.6	11.8
Wisconsin	1,960	3,361	1,401	71.5	7.5	8.9
Minnesota	2,513	2,698	185	7.4	9.6	7.2
Iowa	2,355	3,482	1,127	47.9	9.0	9.2
Missouri	3,177	3,427	250	7.9	12.2	9.1
North Dakota	169	453	284	168.0	0.6	1.2
South Dakota	545	962	417	76.5	2.1	2.6
Nebraska	1,193	1,610	417	35.0	4.6	4.2
Kansas	1,087	2,554	1,467	135.0	4.2	6.8
TOTAL	26,112	37,720	11,608	44.5	100.0	100.0

(Mining)	1959	1969	Change	Percent Change	Percent of Region: 1969	Percent of Region: 1969
Ohio	20,809	19,077	-1,732	-8.3	17.0	18.8
Indiana	9,407	6,768	-2,639	-28.1	7.7	6.7
Illinois	26,591	20,823	-5,768	-21.7	21.7	20.5
Michigan	12,872	11,140	-1,732	-13.4	10.5	11.0
Wisconsin	2,860	2,644	-216	-7.6	2.3	2.6
Minnesota	15,062	13,104	-1,958	-13.0	12.3	12.9
Iowa	2,741	2,778	37	1.3	2.2	2.7
Missouri	8,438	8,752	314	3.7	6.9	8.6
North Dakota	2,571	11,883	-688	-26.8	2.1	1.8
South Dakota	2,518	2,442	-76	-3.0	2.0	2.4
Nebraska	2,339	11,486	-853	-36.5	1.9	1.5
Kansas	16,527	10,705	-5,822	-35.2	13.4	10.5
TOTAL	122,735	101,602	-21,133	-17.2	100.0	100.0

(Services)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	298,148	488,623	190,475	63.9	18.9	18.6
Indiana	114,475	189,044	74,569	65.1	7.2	7.2
Illinois	387,577	600,224	212,647	54.9	24.6	22.9
Michigan	216,686	375,323	158,637	73.2	13.7	14.3
Wisconsin	108,562	193,875	85,313	78.6	6.9	7.4
Minnesota	108,635	195,709	87,074	80.2	6.9	7.5
Iowa	70,723	118,947	48,224	68.2	4.5	4.5
Missouri	146,585	248,859	102,274	69.8	9.3	9.5
North Dakota	15,529	25,624	10,095	65.0	1.0	1.0
South Dakota	14,958	26,512	11,554	77.2	0.9	1.0
Nebraska	42,570	71,244	28,674	67.4	2.7	2.7
Kansas	53,603	89,614	36,011	67.2	3.4	3.4
TOTAL	1,578,051	2,623,598	1,045,547	66.3	100.0	100.0

Table 7. Continued

(Contract Construction)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	112,092	153,815	41,723	37.2	18.5	19.2
Indiana	51,146	80,016	28,870	56.4	8.4	10.0
Illinois	141,140	176,027	34,887	24.7	23.3	22.0
Michigan	72,067	111,605	39,538	54.9	11.9	14.0
Wisconsin	41,569	57,178	15,609	37.6	6.9	7.1
Minnesota	40,142	55,751	15,609	38.9	6.6	6.9
Iowa	26,680	33,501	6,821	25.6	4.4	4.2
Missouri	57,517	69,976	12,459	21.7	9.5	8.7
North Dakota	5,842	6,031	189	3.2	1.0	0.7
South Dakota	6,191	6,355	164	2.6	1.0	0.8
Nebraska	17,426	21,537	4,111	23.6	2.9	2.7
Kansas	33,653	29,670	-3,983	-11.8	5.6	3.7
TOTAL	605,465	801,462	195,997	32.4	100.0	100.0

(Manufacturing)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	1,248,192	1,471,195	223,003	17.9	23.1	22.3
Indiana	576,174	729,214	153,040	26.6	10.7	11.0
Illinois	1,202,618	1,419,614	216,996	18.0	22.3	21.4
Michigan	959,108	1,198,536	239,428	25.0	17.7	18.1
Wisconsin	446,807	518,660	71,853	16.1	8.3	7.9
Minnesota	219,298	323,369	104,071	47.4	4.0	4.9
Iowa	176,322	219,068	42,746	24.2	3.3	3.3
Missouri	379,276	473,251	93,975	24.8	7.0	7.2
North Dakota	6,522	8,165	1,643	25.2	0.1	0.1
South Dakota	12,749	15,779	3,030	23.8	0.2	0.2
Nebraska	59,472	85,518	26,046	43.8	1.1	1.3
Kansas	118,294	147,789	29,495	24.9	2.2	2.2
TOTAL	5,404,832	6,610,158	1,205,326	22.3	100.0	100.0

Table 7. Continued

(Wholesale Trade)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	158,067	195,199	37,132	23.5	17.5	17.6
Indiana	65,700	87,020	21,320	32.5	7.3	7.8
Illinois	222,011	279,650	57,639	26.0	24.6	25.2
Michigan	110,427	149,583	39,156	35.5	12.3	13.5
Wisconsin	56,276	70,194	13,918	25.0	6.2	6.3
Minnesota	69,466	78,828	9,362	13.5	7.7	7.1
Iowa	45,133	46,969	1,836	4.1	5.0	4.2
Missouri	97,597	111,768	14,171	14.5	10.8	10.0
North Dakota	10,416	12,407	1,991	19.1	1.2	1.1
South Dakota	9,259	10,765	1,506	16.3	1.0	1.0
Nebraska	25,801	31,523	5,722	22.2	2.9	2.8
Kansas	31,217	37,451	6,234	20.0	3.5	3.4
TOTAL	901,370	1,111,357	209,987	23.3	100.0	100.0

(Retail Trade)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	436,796	576,204	139,408	31.9	19.0	18.5
Indiana	205,975	280,161	74,186	36.0	9.0	9.0
Illinois	481,854	656,599	174,745	36.3	21.0	21.0
Michigan	310,845	449,798	138,953	44.7	13.5	14.4
Wisconsin	172,393	244,153	71,760	41.6	7.6	7.8
Minnesota	152,283	216,483	64,200	42.2	6.6	6.9
Iowa	120,214	159,785	39,571	32.9	5.2	5.1
Missouri	204,339	269,837	65,498	32.1	8.9	8.6
North Dakota	26,491	30,396	3,905	14.7	1.2	1.0
South Dakota	26,338	32,903	6,565	24.9	1.1	1.1
Nebraska	65,669	87,526	21,857	33.3	2.9	2.8
Kansas	91,804	118,583	26,779	29.2	4.0	3.8
TOTAL	2,295,001	3,122,428	827,427	36.1	100.0	100.0

Table 7. Continued

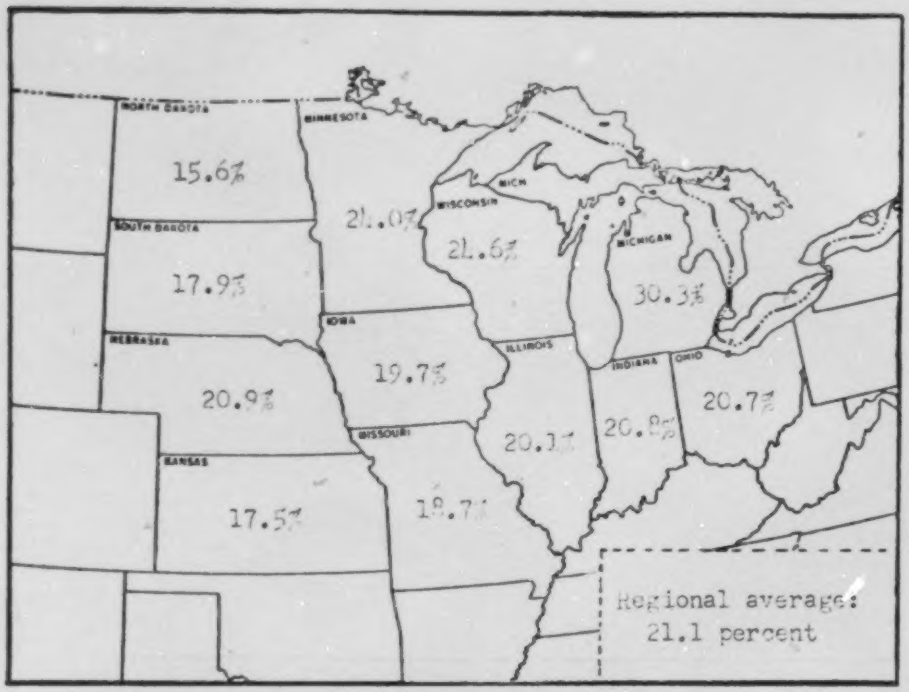
(Financial Services)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	109,829	149,957	40,128	36.5	16.7	16.9
Indiana	54,129	73,676	19,547	36.1	8.2	8.3
Illinois	179,017	226,011	46,994	26.3	27.2	25.5
Michigan	76,619	112,844	36,225	47.3	11.6	12.7
Wisconsin	42,033	58,243	16,210	38.6	6.4	6.5
Minnesota	46,280	61,968	15,688	33.9	7.0	7.0
Iowa	29,945	41,610	11,665	39.0	4.5	4.7
Missouri	66,985	91,332	24,347	36.3	10.2	10.3
North Dakota	5,115	6,957	1,842	36.0	0.8	0.8
South Dakota	5,398	7,390	1,992	36.9	0.8	0.8
Nebraska	21,427	28,093	6,666	31.1	3.3	3.2
Kansas	21,464	29,053	7,589	35.4	3.3	3.3
TOTAL	658,241	887,134	228,893	34.8	100.0	100.0

(Transportation & Public Utilities)	1959	1969	Change	Percent Change	Percent of Region: 1959	Percent of Region: 1969
Ohio	141,508	173,756	32,248	22.8	17.9	18.2
Indiana	63,447	75,787	12,340	19.4	8.0	8.0
Illinois	202,581	231,183	28,602	14.1	25.6	24.3
Michigan	95,961	127,829	31,868	33.2	12.1	13.4
Wisconsin	49,495	63,437	13,942	28.2	6.3	6.7
Minnesota	50,239	63,401	13,162	26.2	6.4	6.7
Iowa	37,004	38,352	1,348	3.6	4.7	4.0
Missouri	84,745	104,905	20,160	23.8	10.7	11.0
North Dakota	6,808	8,148	1,340	19.7	0.9	0.8
South Dakota	7,244	8,679	1,435	19.8	0.9	0.9
Nebraska	19,858	23,639	3,781	19.0	2.5	2.5
Kansas	31,612	33,535	1,923	6.1	4.0	3.5
TOTAL	790,502	952,651	162,149	20.6	100.0	100.0

fisheries, contract construction, retail trade, financial services, and services increased in relative importance while mining, manufacturing, transportation and utilities, and wholesale trade decreased in importance.

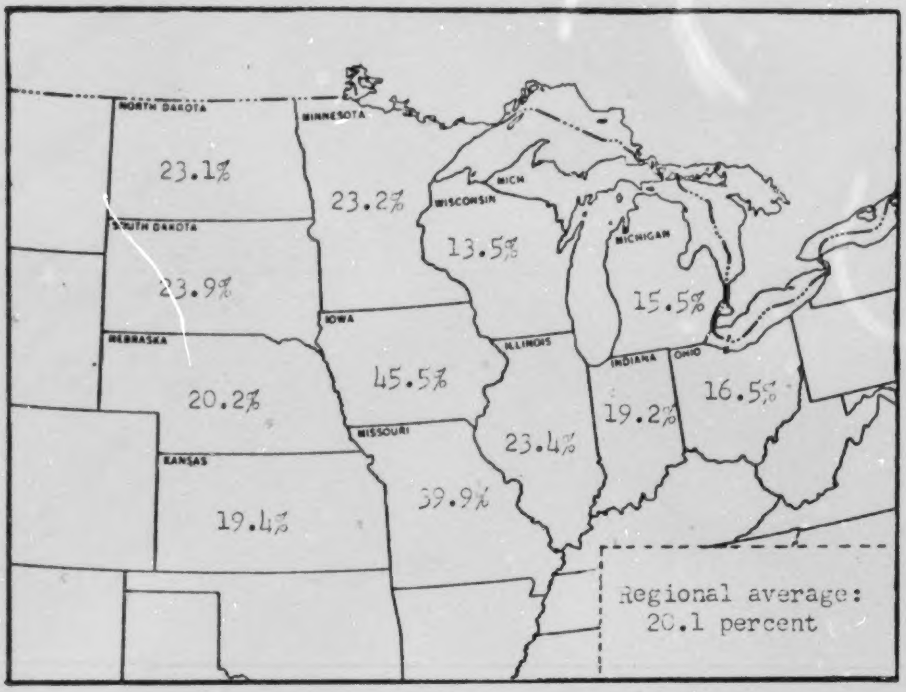
Agricultural Productivity in the North Central Region

Rural development with respect to agriculture has meant two things to most people: increasing farm output and decreasing farm numbers. There is little doubt that both these trends will continue for some time in the future. Of these two trends, the change in farm numbers is most closely related to economic and social development in the North Central Region. Over the decade from 1959 to 1969, the number of farms in the North Central Region declined by 308,823 farms or by 21.1 percent. The decline occurred in every state of the region with the individual percentages ranging from 15.6 percent in North Dakota to 30.3 percent in Michigan as shown in Figure 14. As farm numbers declined, farm sizes increased. The average rate of increase for the region was 20.1 percent from 1959 to 1969 while the increases in individual states ranged from 13.5 percent in Wisconsin to 23.9 percent in South Dakota as shown in Figure 15.


NORTH DAKOTA
15.6%
MINNESOTA
24.0%
SOUTH DAKOTA
17.9%
WISCONSIN
24.6%
MICH
MICHIGAN
30.3%
NEBRASKA
20.9%
IOWA
19.7%
ILLINOIS
20.1%
INDIANA
20.8%
OHIO
20.7%
KANSAS
17.5%
MISSOURI
18.7%
Regional average:
21.1 percent

Source: U.S. Census of Agriculture: 1969

FIGURE 14: Percent decline in farm numbers in the North Central Region: 1959-1969


NORTH DAKOTA
23.1%
MINNESOTA
23.2%
SOUTH DAKOTA
23.9%
WISCONSIN
13.5%
MICH
MICHIGAN
15.5%
IOWA
45.5%
NEBRASKA
20.2%
ILLINOIS
23.4%
INDIANA
19.2%
OHIO
16.5%
MISSOURI
39.9%
KANSAS
19.4%
Regional average:
20.1 percent

Source: U.S. Census of Agriculture: 1969

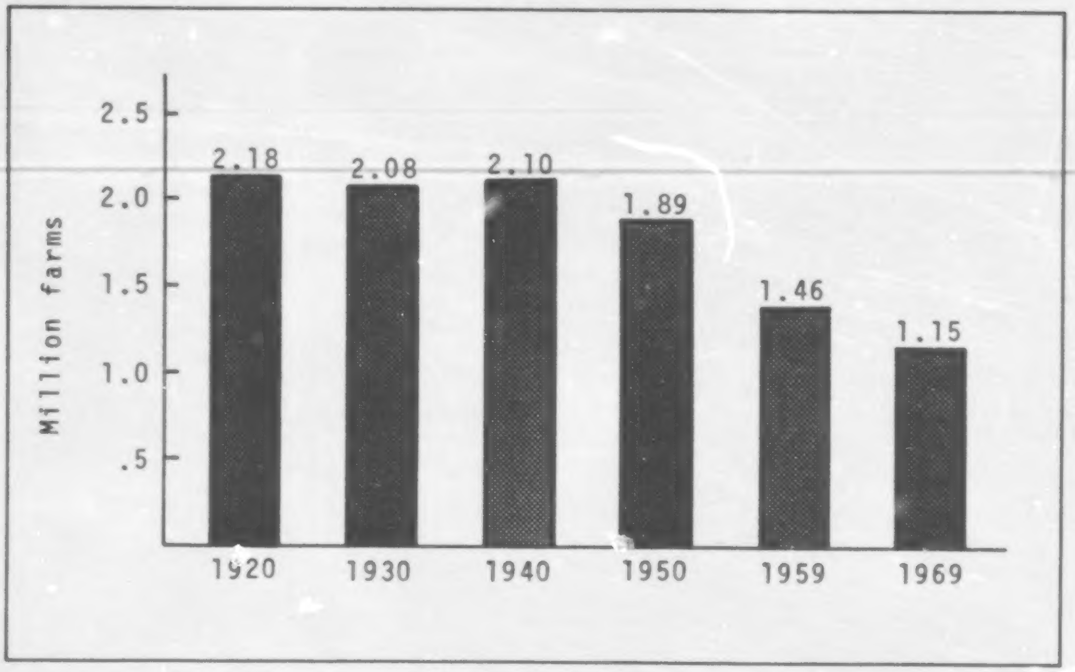
FIGURE 15: Percent increase in farm size in the North Central Region: 1959-1969

Farm numbers and size

The declining trend in farm numbers from 1959 to 1969 represents a continuation of the trend established much earlier. Farm numbers in the North Central Region have fallen consistently since 1940 (Figure 16). If the trend from 1940 to 1969 continues, there will be approximately 600,000 farms in the region by the turn of the century.

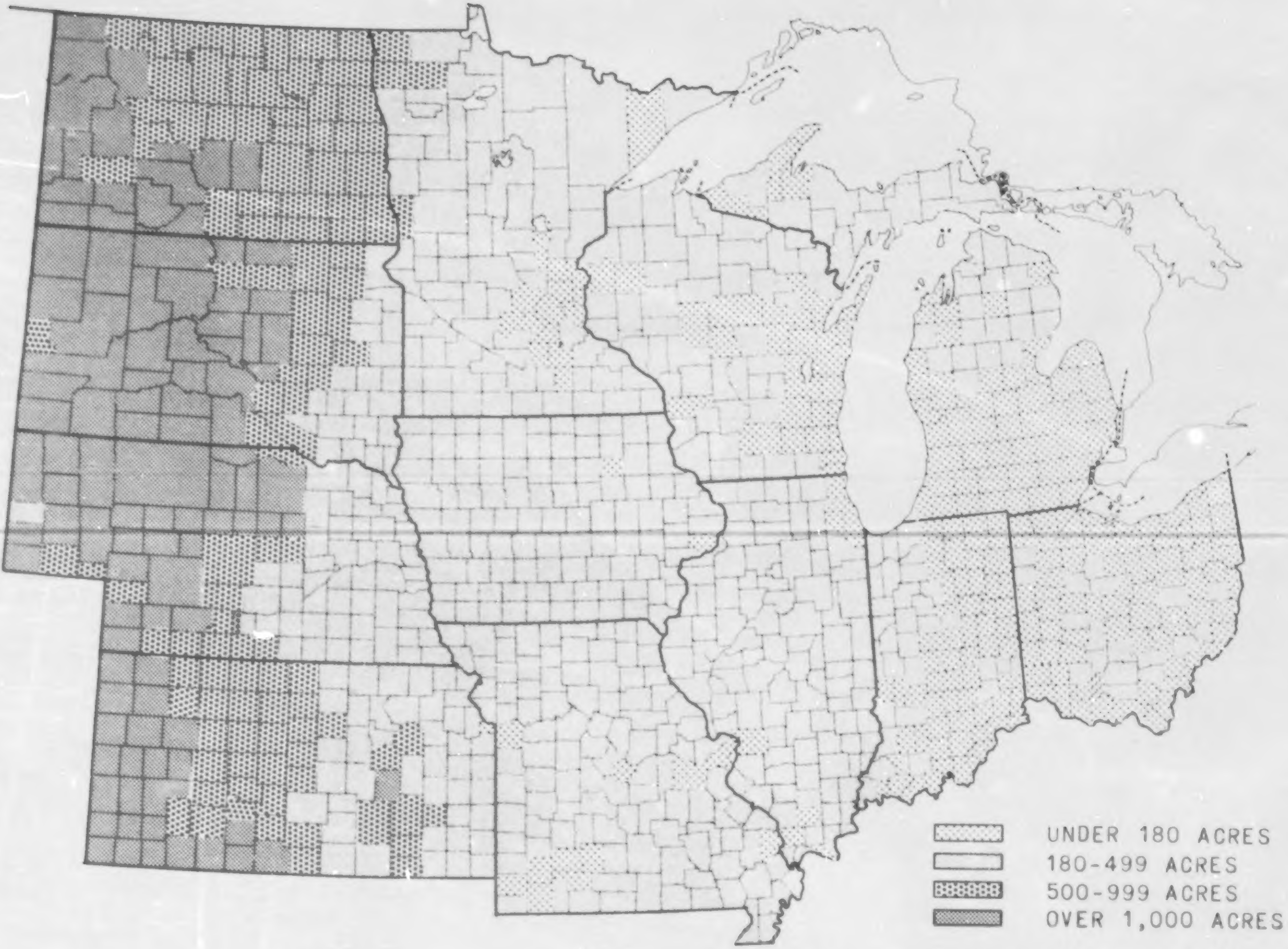
Variation in farm size is closely associated with geographic location within the North Central Region. The eastern states of Ohio, Indiana, Michigan, and the lake area of Illinois and Wisconsin averaged farm sizes of less than 180 acres in 1964. With the exception of the lake area in Wisconsin and Illinois, the area from the eastern border of Illinois to the western edge of the Missouri River valley is dominated with farms from 180 to 499 acres. Eastern North Dakota, and the central area of South Dakota, Nebraska, and Kansas is dominated by farms averaging between 500 and 1,000 acres. Finally, the western edge of the region is characterized by farms which exceed 1,000 acres (Figure 17).

The size of farms is closely related to land productivity which accounts for the distinct changes in size structure from one area to another. As shown in Figure 18, the productivity (as measured by gross returns per acre) of the region varies greatly from the central Cornbelt to the Plains area



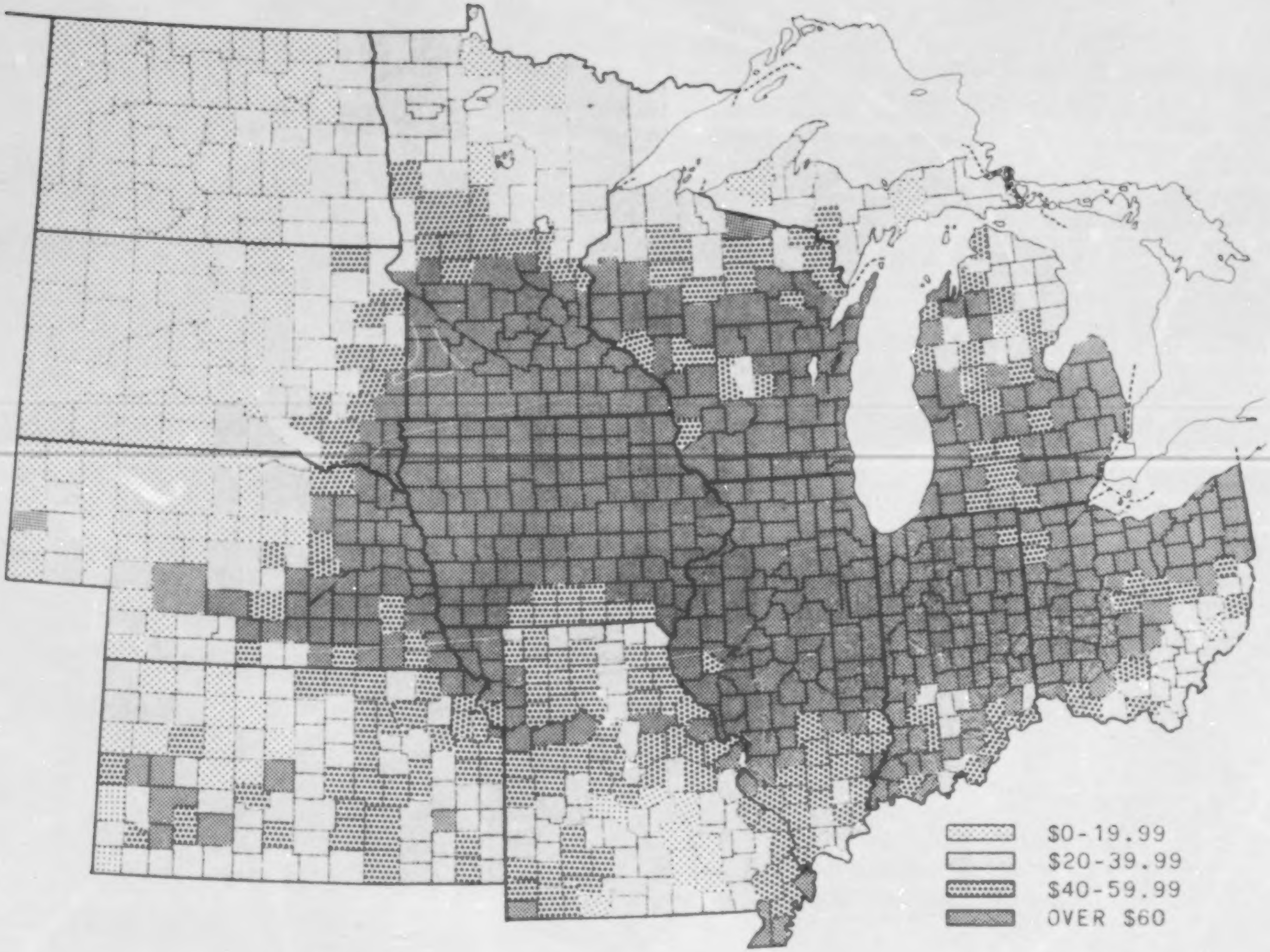
Source: U.S. Census of Agriculture: 1959 and 1969

FIGURE 16: Farm Numbers in the North Central Region: 1920-1969


UNDER 180 ACRES
180-499 ACRES
500-999 ACRES
OVER 1,000 ACRES

Source: U.S. Census of Agriculture

FIGURE 17: Size of farms of the North Central Region by county: 1964


$0-19.99
$20-39.99
$40-59.99
OVER $60

Source: U.S. Census of Agriculture

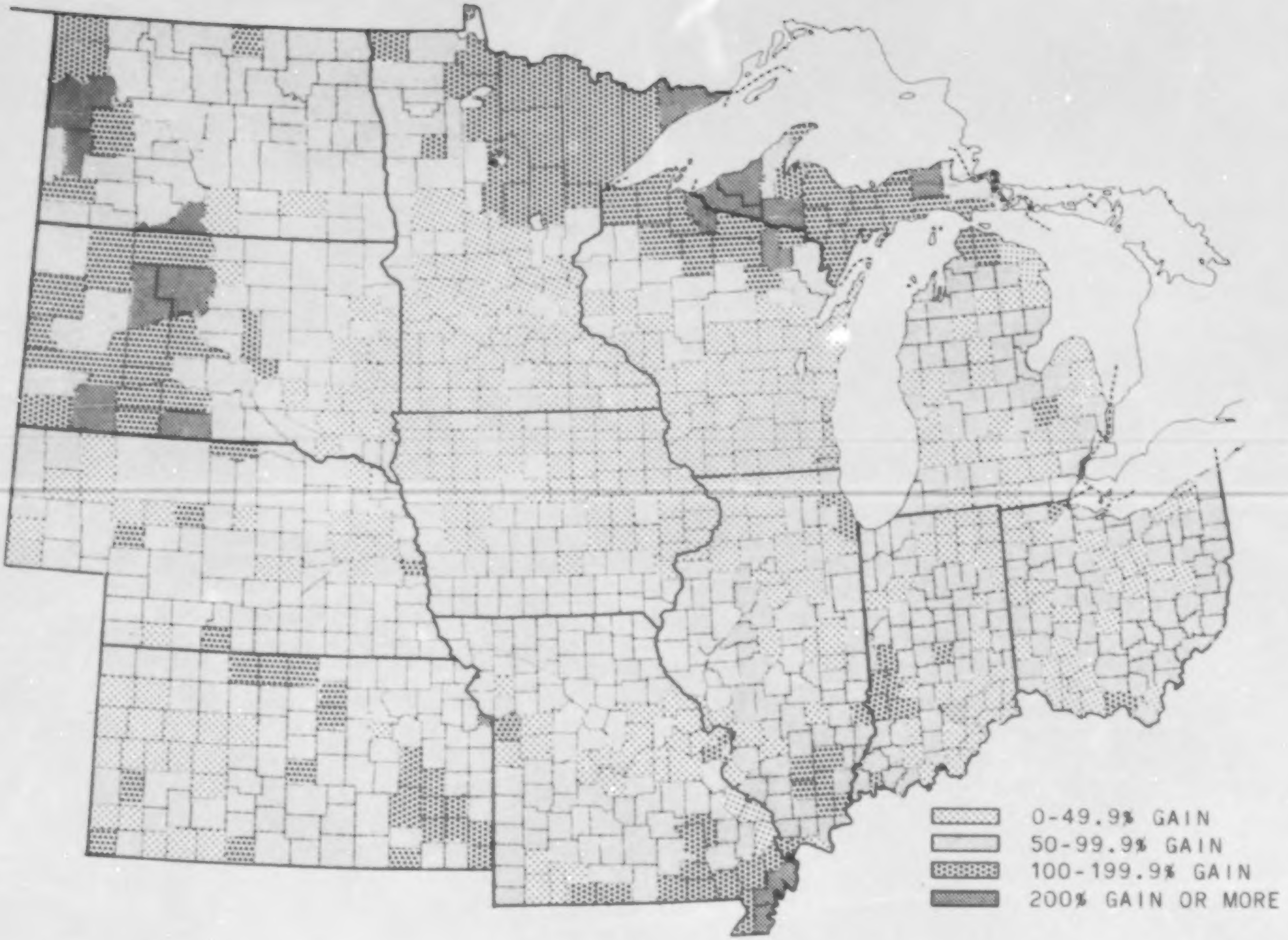
FIGURE 18: Average value of farm products sold per acre of farm land of the North Central Region by county: 1964

on the western edge of the region. A wide band through Iowa, southern Wisconsin, northern Illinois and Indiana, and into Ohio reports average sale of farm products per acre of over $60. Bounding this extensive production region is a small band of counties reporting $40 to $59 of sales per acre. On the outskirts of this area is a third band of counties, along the northern and southern edge of the North Central Region and the eastern part of the four plains states, which have sales of $20 to $39 per acre. Finally, the western part of the plains states, plus a pocket in northern Minnesota and a pocket in southern Missouri, have sales of less than $20 per acre.

The combination of varying farm size and differences in income per acre results in a wide range of incomes per farm throughout the region. Using Iowa and Illinois as examples, both states generally have a reported income of over $60 per acre and farms from 180 to 499 acres which results in gross incomes from a little over $10,000 to nearly $30,000. To have a similar income in the areas averaging less than $19 sales per acre, it is necessary to manage far in excess of 500 acres. In fact, this larger size farm is found to coincide almost exactly with the low productivity area of the western Plains states.

The level of productivity per acre and the gross income earned per acre have considerable influence on the rate at which farm expansion occurs. As factors affecting income per acre change--farm level prices and yields per acre--farm size also changes. In the North Central Region, the rate at which farm expansion has taken place has followed geographic lines. Northern Illinois, southern Wisconsin and Minnesota, most of Iowa, and the eastern part of the Dakotas and Nebraska have had less than a 50 percent increase in farm size from 1940 to 1970, or less than a 2 percent annual increase (Figure 19). Scattered counties in Ohio, Indiana, and Michigan fall into this class as well. The bulk of the remaining counties have had a 50 to 100 percent increase in farm size over the 24-year period except for an area in northern Minnesota, Wisconsin, and Michigan and an area in the western part of the Dakotas where farm size has increased by more than 100 percent (Figure 19).

The question being asked by many is how long the trend to fewer and larger farms can continue? The answer is tied to two basic factors--the rate at which new technology is generated and the rate at which farm prices change--both the prices of capital and labor inputs and the prices of outputs. Also of some importance is the rate of farmland conversion to residential, industrial, and recreational uses. Together, these factors explain what has happened to the disappearing farms. The largest number have been consolidated with existing farm units, resulting in an average increase in farm


0-49.9% GAIN
50-99.9% GAIN
100-199.9% GAIN
200% GAIN OR MORE

Source: U.S. Census of Agriculture

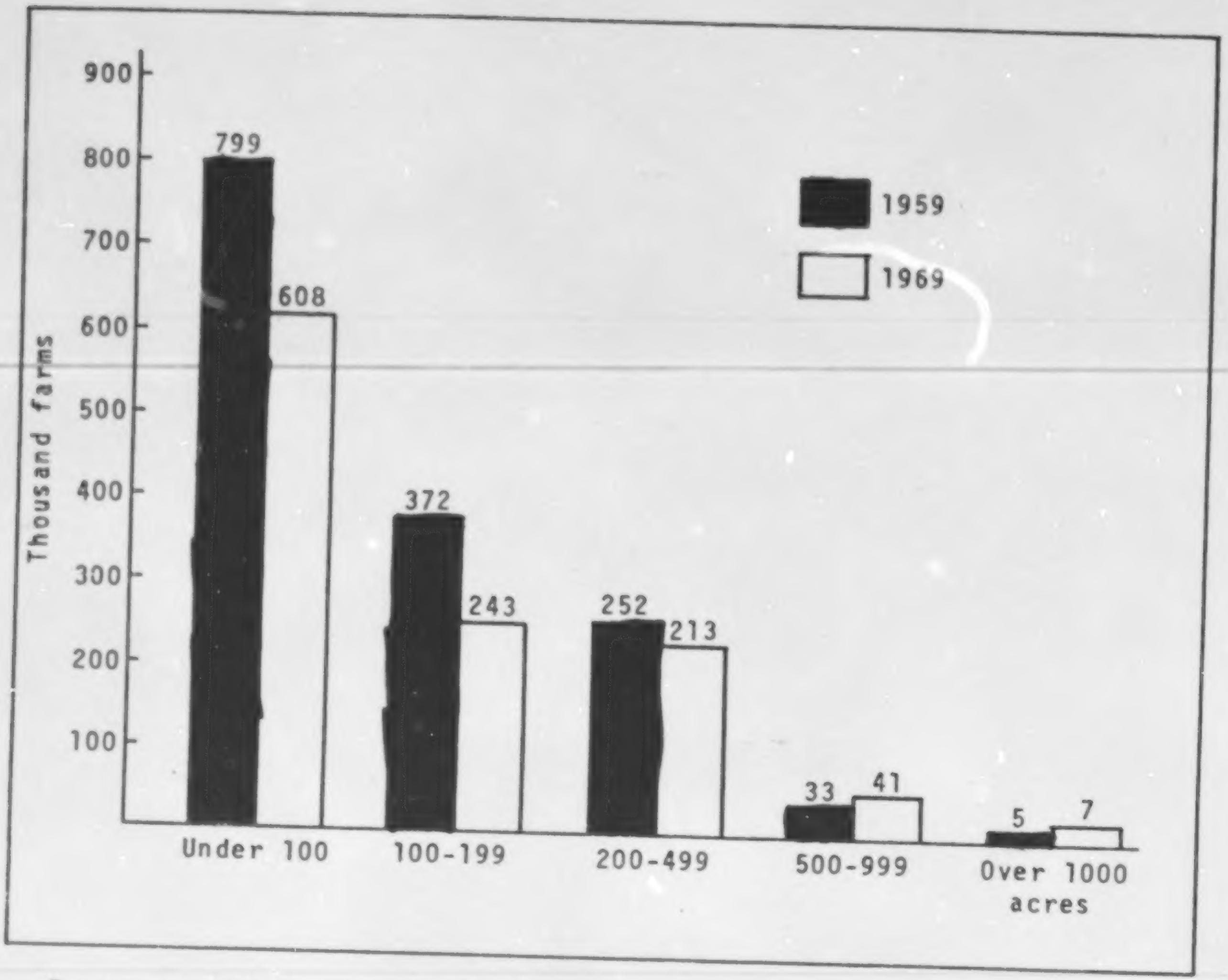
FIGURE 19: Percent change in size of farms of the North Central Region by county: 1940-1964

size for the whole region of 20.1 percent from 1959 to 1969. At the same time, the area in farms decreased by only 2.3 percent. As long as new technology is adopted in agriculture at the rate that has been experienced since 1940, farm size will increase and farm numbers will decline. Industrial development has had varying effects on expansion of farm size and the decline in farm numbers. As an example, farm size in Michigan increased by 15.5 percent for the 1950 to 1969 period, less than the regional average, but farm numbers decreased by 30.3 percent, well above the region's average. The basic cause was that the percent of land in farms in Michigan declined by 19.3 percent during the ten-year period compared with an average decrease of 2.3 percent for the region. Looking forward to more industrialization in rural areas under a national rural development policy, we can expect the decline in farm numbers to keep pace with the past trend.

The question of farm size is not as clear. A rural development policy which promotes industrial relocation to rural areas is most likely to slow down the expansion of farm size, but it will not stop the expansion in the near future. The adoption of new technologies will continue to encourage farm consolidations and expansion.

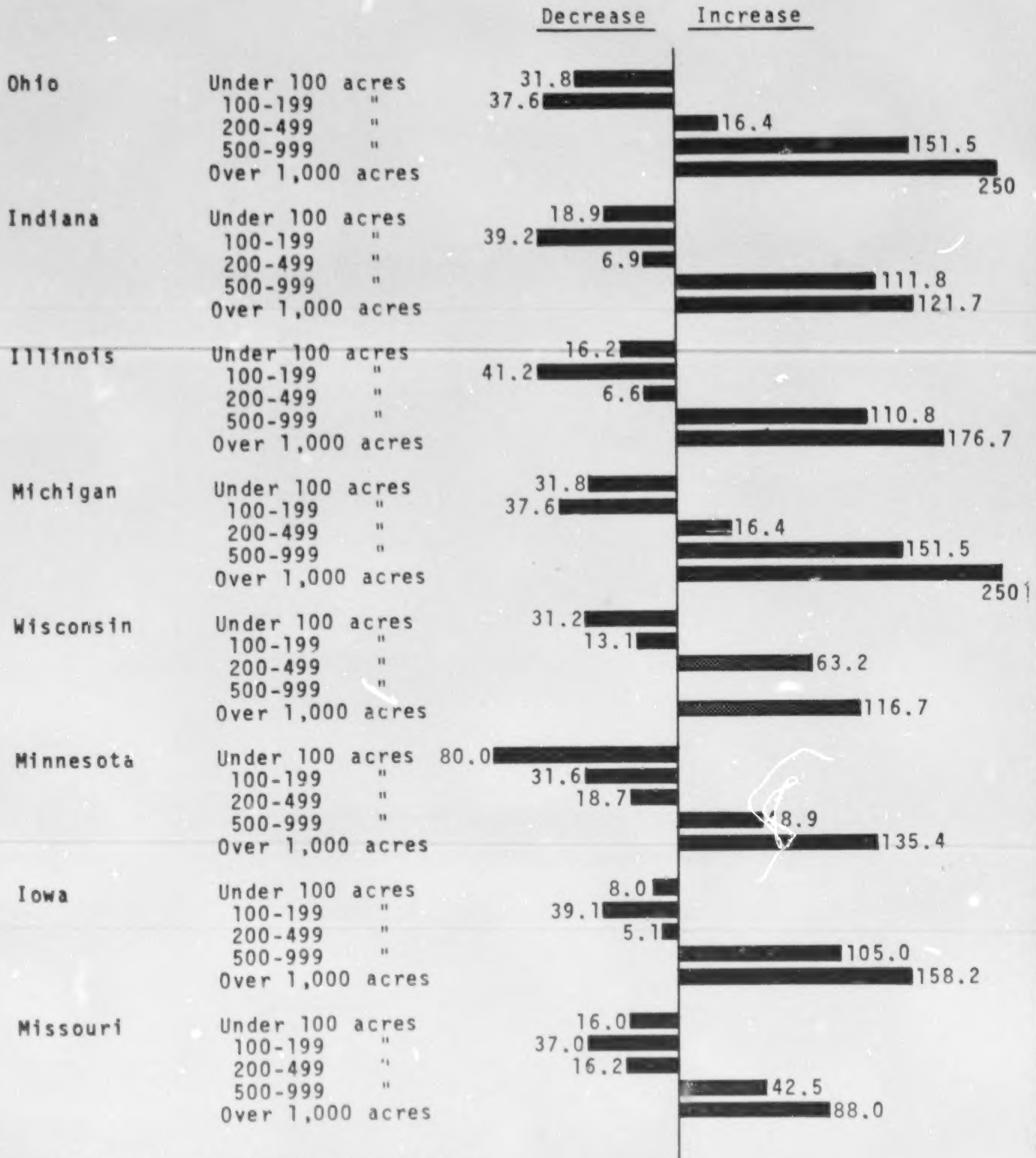
If we can anticipate continual declines in farm numbers, what is the nature of the disappearing farms and those remaining? From 1959 to 1969, the number of farms in the North Central Region under 500 acres declined by 318,882. The major decline--150,961 farms--was among farms with less than 100 harvested acres (Figure 20). The second greatest decline (129,368 farms) came in the class with 100-199 harvested acres. The remaining class with 200-499 harvested acres accounted for a decline of 38,553 farms. The only two classes to show an increase in number were the 500-999 and the over 1,000 acres farm classes. The 500-999 class increased by 24.0 percent (7,869 farms) and the over 1,000 class increased by 43.7 percent (2,190 farms).

Like the region as a whole, each of the states experienced a decline in farm numbers in the three classes under 500 acres with the exception of five cases (Figure 21). North Dakota, South Dakota, and Nebraska each had an increase in number of farms under 100 acres, an outcome which is not easy to explain. Michigan and Wisconsin each had an increase in farm numbers in the 200-499 acre class, an outcome more easily understood because of the heavy orientation to dairy and fruit and vegetable production. The only two states that reversed the regional trend for farms over 500 acres were North Dakota, with a decline in number of farms between 500 and 999 acres, and Nebraska, with a decline in farms over 1,000 acres. With few exceptions, the trend is to larger farms--particularly farms over 500 acres. The limits on this



Source: U.S. Census of Agriculture: 1969

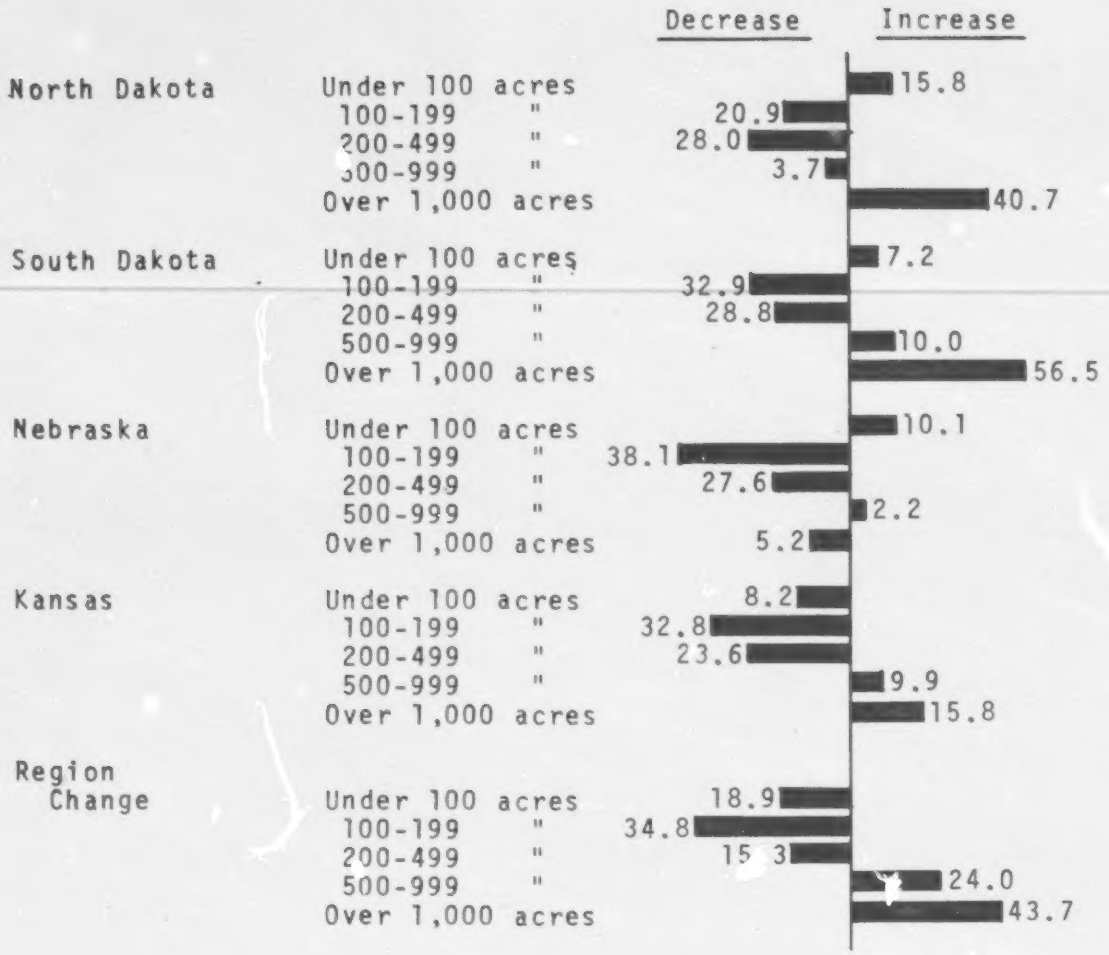
FIGURE 20: Number of farms in the North Central Region by harvested acres: 1959 and 1969



Source: U.S. Census of Agriculture

FIGURE 21: Percent change in number of farms in the North Central Region by acres harvested: 1959-1969

Continued


Decrease
Increase
North Dakota
Under 100 acres
15.8
100-199 "
20.9
200-499 "
28.0
500-999 "
3.7
Over 1,000 acres
40.7
South Dakota
Under 100 acres
7.2
100-199 "
32.9
200-499 "
28.8
500-999 "
10.0
Over 1,000 acres
56.5
Nebraska
Under 100 acres
10.1
100-199 "
38.1
200-499 "
27.6
500-999 "
2.2
Over 1,000 acres
5.2
Kansas
Under 100 acres
8.2
100-199 "
32.8
200-499 "
23.6
500-999 "
9.9
Over 1,000 acres
15.8
Region Change
Under 100 acres
18.9
100-199 "
34.8
200-499 "
15.3
500-999 "
24.0
Over 1,000 acres
43.7

trend rest with the rate at which new technology is adopted, the economies of scale which can be achieved with larger units, and the pressure arising from changing input and commodity-price relationships.

Farm income

Farm income and sales from crops and livestock in the region each increased over the period from 1959 to 1969 (Figure 22), and consequently total farm income and sales also increased (Figure 23). Taking account of inflation,[1] the real value of 1969 farm income and sales (in 1959 dollars) was $15.98 million with $5.27 million from crops and $10.71 million from livestock. Although the inflation factor reduced real income significantly, it did not reduce it below the 1959 level. Consequently, farm income and sales show a small real growth over the ten-year period. One other measure can be detected in the regional totals. In 1959, 33.6 percent of the income came from crops and 66.4 percent from livestock. In 1969, the percentages were 33 and 67, respectively. Livestock sales grew only slightly more rapidly than crop sales over the ten-year period. The region in 1959 had only a slightly heavier concentration in livestock production than a

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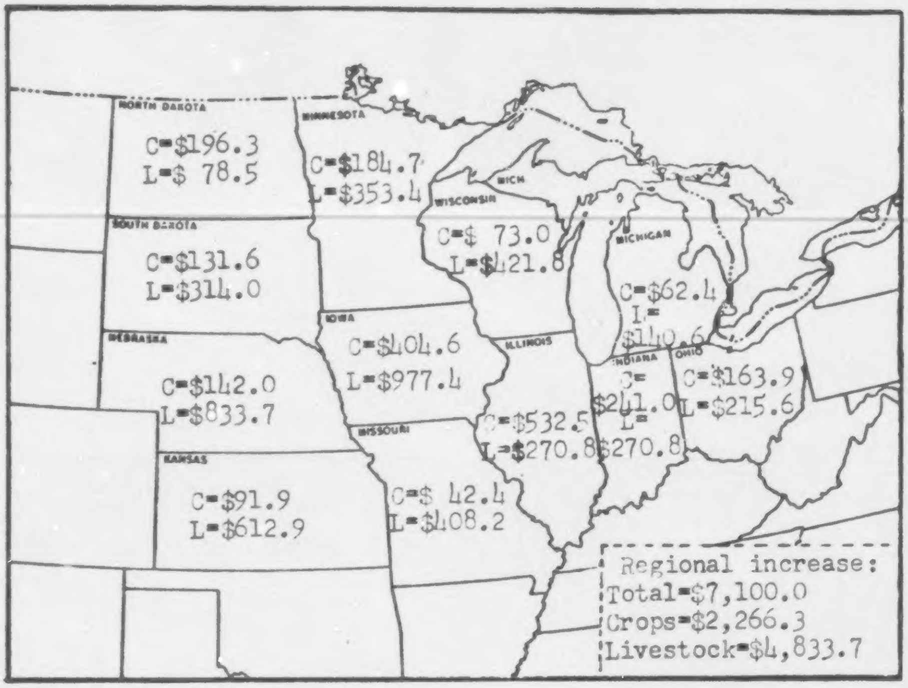
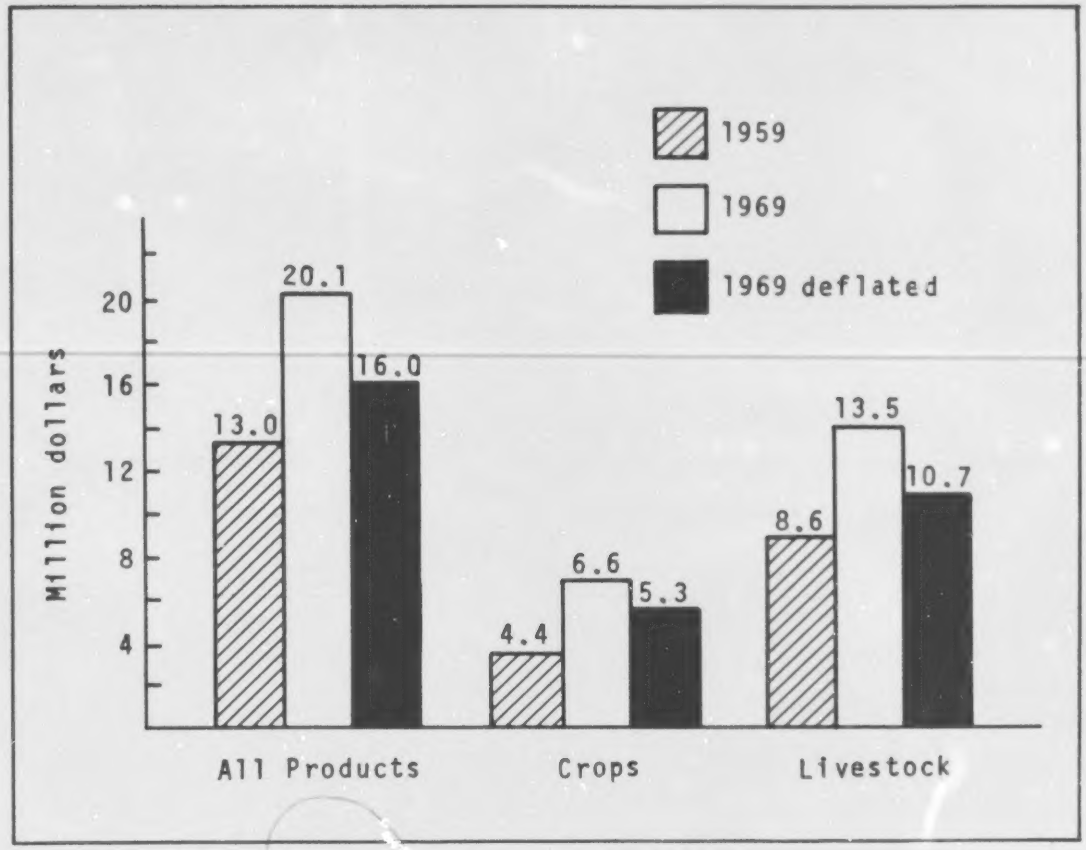
[1] The consumer price index was 87.3 in 1959 and 109.8 in 1969 using a base of 100 in 1967. The change represents an increase of 25.8 percent over the ten-year period.


NORTH DAKOTA
C=$196.3
L=$ 78.5
MINNESOTA
C=$184.7
L=$353.4
SOUTH DAKOTA
C=$131.6
L=$314.0
WISCONSIN
C=$ 73.0
L=$421.8
MICH
MICHIGAN
C=$62.4
L=
$140.6
NEBRASKA
C=$142.0
L=$833.7
IOWA
C=$404.6
L=$977.4
ILLINOIS
C=$532.5
L=$270.8
INDIANA
C=
$241.0
L=
$270.8
OHIO
C=$163.9
L=$215.6
KANSAS
C=$91.9
L=$612.9
MISSOURI
C=$ 42.4
L=$408.2
Regional increase:
Total=$7,100.0
Crops=$2,266.3
Livestock=$4,833.7

Source: U.S. Census of Agriculture: 1959 and 1969

FIGURE 22: Increase in farm income and sales from crops and livestock in the North Central Region: 1959-1969 (in millions of dollars)



Source: U.S. Census of Agriculture: 1959 and 1969

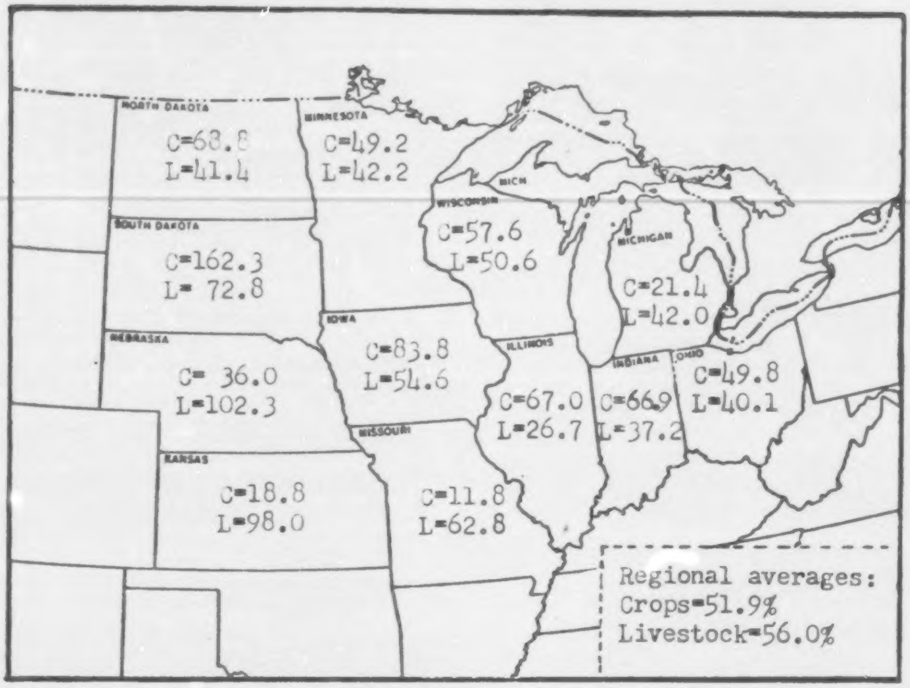
FIGURE 23: Average farm income and sales in the North Central Region: 1959 and 1969

decade earlier.

Although the region as a whole experienced a small relative shift toward livestock production, livestock expansion was quite rapid for several individual states. Illinois had the smallest increase in livestock sales with a 26.7 percent increase, while Nebraska had the largest increase with 102.3 percent. Five states--Iowa, Missouri, South Dakota, Nebraska, and Kansas--increased livestock by a rate equal to or greater than the rate of increase in total farm sales. However, even when livestock sales were deflated by the price index, all states experienced an increase in the real value of income and sales from livestock.

The range of increase in crop sales was from 11.8 percent in Missouri to 162.3 percent in South Dakota. Six states--Indiana, Illinois, Wisconsin, Iowa, North Dakota, and South Dakota--had a greater rate of increase in crop sales than the rate of increase in total sales (Figure 24). In contrast to the livestock situation, two states--Missouri and Kansas--experienced a decline in real value of crop sales. As with the region as a whole, however, none of the states experienced a decline in real value of total sales.

The trend toward more intensive livestock production is counter to the national trend. From 1959 to 1964, crop sales in the United States increased from 44 percent to 46.5 percent of the total sales while livestock sales dropped from 56


NORTH DAKOTA
C=68.8
L=41.4
MINNESOTA
C=49.2
L=42.2
SOUTH DAKOTA
C=162.3
L= 72.8
WISCONSIN
C=57.6
L=50.6
MICH
MICHIGAN
C=21.4
L=42.0
NEBRASKA
C= 36.0
L=102.3
IOWA
C=83.8
L=54.6
ILLINOIS
C=67.0
L=26.7
INDIANA
C=66.9
L=37.2
OHIO
C=49.8
L=40.1
KANSAS
C=18.8
L=98.0
MISSOURI
C=11.8
L=62.8
Regional averages:
Crops=51.9%
Livestock=56.0%

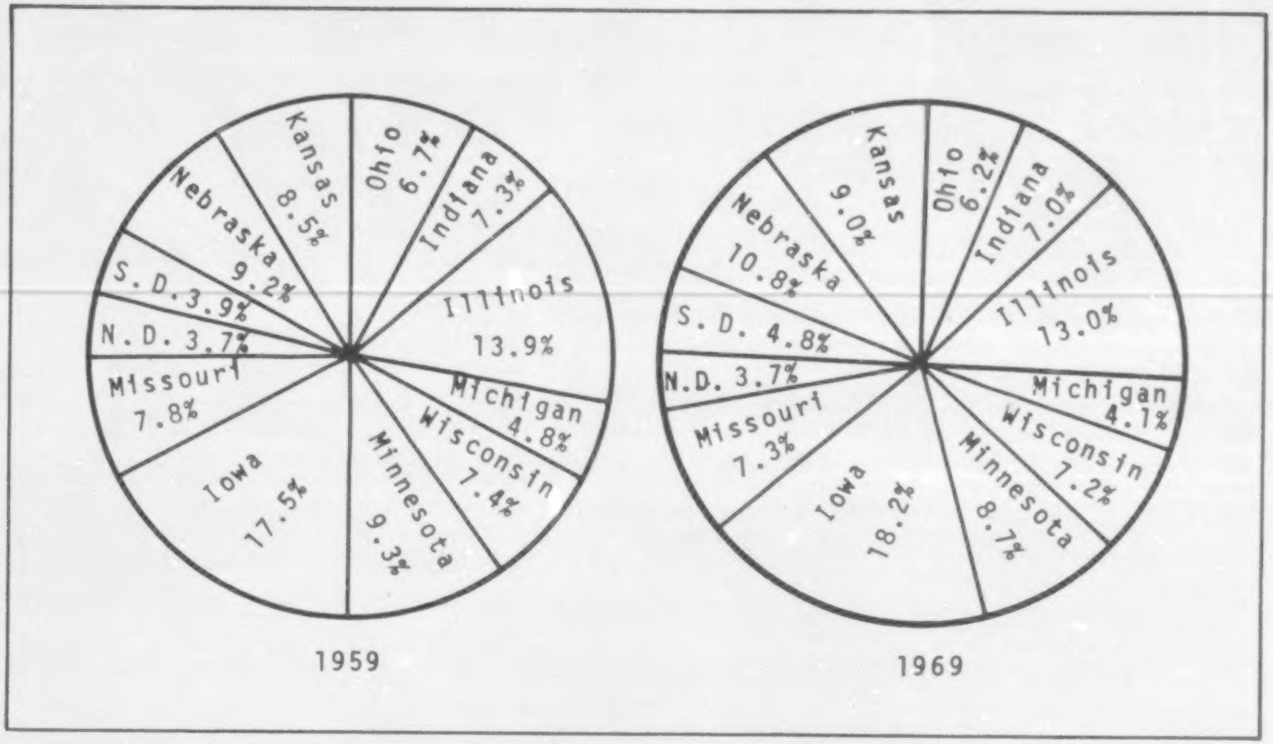
Source: U.S. Census of Agriculture: 1959 and 1969

FIGURE 24: Percent change in farm income and sales in the North Central Region: 1959-1969

percent to 53.5 percent. Comparison of the national and regional data indicates a shift in the nation's livestock production to the North Central Region.

The substitutability of labor between crop and livestock enterprise, and the relatively limited supply of labor in the region, suggest that as livestock enterprises are expanded in the region, relatively less labor will be available for crop production. One of the factors influencing farm size is labor availability; with greater utilization of labor in livestock enterprises, the pressure to expand crop acres may be reduced. The expansion of the livestock industry cannot be expected to stop the trend toward fewer and larger farms, but it probably will result in a slower expansion rate than in other regions which are losing their relative share of the livestock market.

Although the North Central Region and the individual states are experiencing a shift in production patterns, there have not been significant changes in the sharing of farm income in the region. Figure 25 indicates the shift in shares ranged from a gain of 1.60 percent by Nebraska to a loss of .06 percent in Minnesota between 1959 and 1969. Other states experiencing a gain in relative share of the income were (Iowa (0.70 percent), North Dakota (0.08 percent), South Dakota (0.83 percent), and Kansas (0.48 percent)). States that experienced a loss were Ohio (0.47 percent), Indiana



Source: U.S. Census of Agriculture: 1959 and 1969

FIGURE 25: State shares of farm income in the North Central Region: 1959 and 1969

(0.28 percent), Illinois (0.92 percent), Michigan (0.69 percent), Wisconsin (0.16 percent), and Missouri (0.50 percent). Collectively, there has been slight shift of relative income shares from the states east of the Missouri River, with the exception of Iowa, to those west of the Missouri River.

Crop income shifts do not follow geographic breakdowns as the shifts in total income did. Over the 1959-1969 period, six states lost part of their share of the region's crop income while the other six states gained. In no case did the gain or loss exceed 2.5 percent. The states which experienced a large share of the region's crop income included Indiana (0.82 percent), Illinois (1.80 percent), Wisconsin (0.11 percent), Iowa (2.33 percent), North Dakota (0.73 percent), and South Dakota (1.35 percent). Those experiencing a loss were Ohio (0.11 percent), Michigan (1.34 percent), Minnesota (0.15 percent), Missouri (2.17 percent), Nebraska (0.94 percent), and Kansas (2.43 percent).

The shift in livestock production did follow geographic lines. All states east of the Missouri River had a smaller degree of livestock income in 1969 than in 1959 except Missouri (0.33 percent gain), and all states west of the Missouri River had a larger share except North Dakota (0.21 percent loss). The other losses included Ohio (0.63 percent), Indiana (0.81 percent), Illinois (2.21 percent), Michigan (0.35 percent), Wisconsin (0.34 percent), Minnesota (0.86

percent), and Iowa (0.17 percent). Other than Missouri, the gains included South Dakota (0.53 percent), Nebraska (2.77 percent), and Kansas (1.95 percent). The dominant trend in production patterns which emerges from the income analysis is a shift in livestock production from the eastern part of the region to the southwestern part of the region, mainly Kansas and Nebraska.

Farm production expenses

While farm income in the North Central Region was increasing by 54.6 percent from 1959 to 1969, farm production expenditures were increasing by 52.7 percent.[1] Deflating the 1969 expenditures to correspond to 1959 dollars, farm production expenses for the region increased by $1.22 billion dollars or 21.4 percent compared with a real increase in income of 22.9 percent.

With the increase in production expenditures came a shift in expenditures. Purchases of livestock and poultry increased sharply, from 35.6 percent in 1959 to 40.9 percent by 1969. Purchases of feed fell from 34.1 percent of production expenses in 1959 to 26.2 percent in 1969. Expenses for seed, bulbs, and plants increased from 3.9 percent to 4.7 percent. Purchases of gasoline and petroleum decreased from 13.2 percent to 10.6 percent. Labor hiring increased from 9.1 percent to 9.8 percent. Custom hiring nearly doubled from 4.1 percent of the expenditures in 1959 tc 7.8 percent in 1969. The striking changes came in increased purchases of livestock and custom hiring and in decreased purchases of feed.

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[1] Farm expenditures considered included purchases of livestock and poultry, feed for livestock and poultry, seeds and plants, gas and petroleum products, hired labor and custom work. Comparable census data is not available for purchases of commercial fertilizer, lime, other chemicals, and other expenditures in 1959.

Net farm income

The concept of a cost-price squeeze in agriculture is presented regularly as proof that farming is no longer profitable. There is little doubt that the price of many agricultural inputs has risen rapidly over the last several decades while the price of output remained constant or declined. In most cases, this comparison is between basic inputs which have significantly changed in nature and basic commodities which are similar to earlier years. For example, the price of a tractor has increased numerous times while the price of corn has remained relatively constant. However, earlier versions of the tractor could produce 30-40 horsepower while the current models generate more than 100 horsepower. Farmers argue that the cost-price squeeze reduces potential profit, but does this imply that actual profit is declining?

Comparing farm income and production expenses in 1959 and 1969, net income increased from $7.31 billion for the region to \$11.41 billion.[1] Adjusting for inflation, the 1969 net income had a real value of \$9.07 billion, or a real increase of \$1.76 billion. In 1959 the \$7.31 billion net income represented a return of \$1.28 for each dollar of expenditure for the six reported classes of farm expenses. In 1969 the comparable return was \$1.31 per dollar of expenditure for the six classes of expenses. This indicates that although the average farmer was spending more than 1.5 times as much on production expenses in 1969 as in 1959, the rate of return on purchased inputs had increased. Total net income increased in both absolute and real terms. When combined with the decrease in farm numbers, net income per farm increased from \$5,002 per farm in 1959 to \$9,904 in 1969, an increase of 98.0 percent.

Another means of comparing productivity of resources is by comparing profit per acre in 1959 and 1969. Using the six classes of expenses reported in 1959 as the expense data for 1959 and 1969, net income per acre increased by \$3.46 in Kansas and by \$23.73 in Wisconsin as shown in Figure 26. The increase in Kansas represented both the smallest absolute change and the smallest percentage change, but even the change of 27.2 percent exceeded the national rate of

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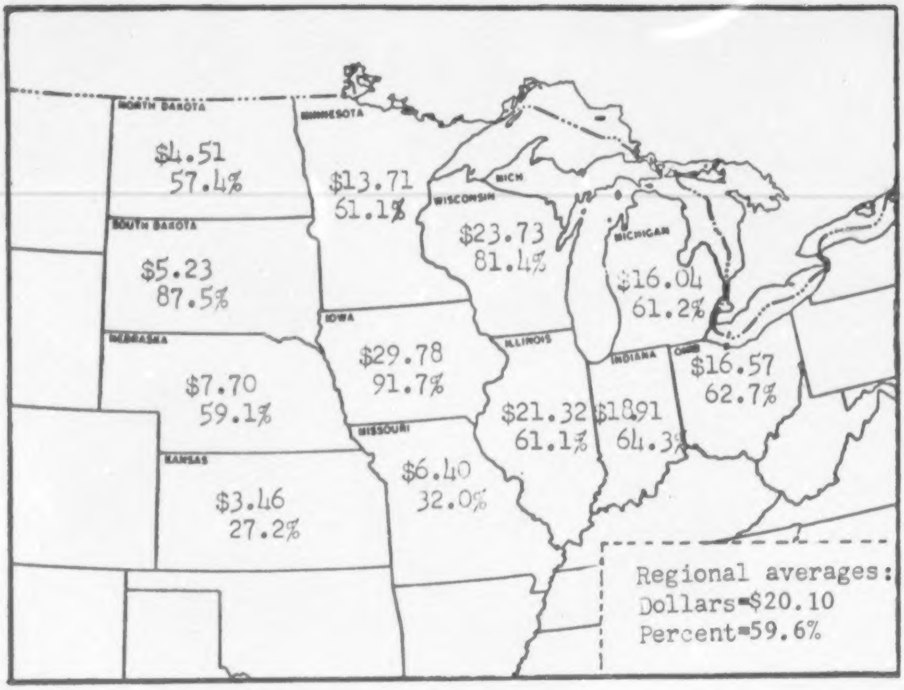
[1] Reported expenses included livestock expenses, feed, seed, petroleum products, hired labor, and custom hiring.


NORTH DAKOTA
$4.51
57.4%
MINNESOTA
$13.71
61.1%
SOUTH DAKOTA
$5.23
87.5%
WISCONSIN
$23.73
81.4%
MICH
MICHIGAN
$16.04
61.2%
IOWA
$29.78
91.7%
NEBRASKA
$7.70
59.1%
ILLINOIS
$21.32
61.1%
INDIANA
$18.91
64.3
OHIO
$16.57
62.7%
MISSOURI
$6.40
32.0%
KANSAS
$3.46
27.2%
Regional averages:
Dollars=$20.10
Percent=59.6%

Source: U.S. Census of Agriculture: 1959 and 1969

FIGURE 26: Change in net farm income per acre in the North Central Region: 1959 and 1969

inflation for the period which was 25.8 percent. The increase in net income per acre ranged as high as 91.7 percent in Iowa with 10 of the 12 states having increases above 50 percent.

Why then are farmers and agricultural leaders arguing that agriculture is no longer profitable? First, it is worthy of a reminder that the six classes of farm expenses listed in the 1959 census do not include all expenses. In fact, the six classes accounted for only 56.16 percent of the total expenses. If the four classes which were not reported in 1959 increased from 1959 to 1969, the net income estimate would be reduced. We can be sure that at least some of the unlisted expenses did increase. Census data for 1964 and 1969 indicate that expenditures for commercial fertilizer alone increased by $254.1 million dollars.

Second, net income estimates represent returns to operator's labor, capital, and management. During the period from 1959 to 1969 the average investment in land and buildings per farm in the North Central Region increased from $38,592 to $75,001. This change alone would require an increase of $2,184 in net income per farm to cover the additional cost on capital, using an opportunity cost of 6 percent. In addition, as average wage rates in other sectors of the economy have increased, the opportunity cost of operator labor has gone up as well.

To reconcile the net income estimates calculated in this report with estimates published elsewhere, the reader is reminded that only six classes of expenses reported in 1959 were considered. The total reported expenses for 1969 were $15.48 billion. Deducting total expenses from reported income for 1969 leaves a balance of $4.62 billion net income for all farms in the region, or $4,015 per farm. Based on a 6 percent opportunity cost on capital, the average capital charge for land and buildings reduces the net income to $1,831 as return to operator's management and labor. Based on a labor input of 3,000 hours, the average return to labor would be only 61 cents per hour.

The census data substantiates that average farm returns to resources are low. Gross income and production costs are growing at about the same rate. In 1969 each dollar invested in production expenses returned $1.30 in farm income. Assuming that the six classes of expenses represented about the same percent of total expenses as in 1969, the total expenses for 1959 were estimated at $10.14 billion with an estimated return per dollar of production expenses of $1.28. Therefore, although the rate of net income realized from production expenses in 1969 is greater than for 1959, the data indicate that the rate of return on farm operator labor and capital (in buildings and land) has improved only slightly.

Number of farms with sales over $2,500

Within the farm census definition, many units are included which are not commercial farm units. On most of these farms the operator derives his primary source of income from an off-farm job. In 1969 there were 261,036 of these noncommercial farms in the region,[1] farms with sales of less than $2,500. These farms represented 22.7 percent of the total number of farms reported in 1969. However, the number of these farms decreased by 133,252 from 1959 to 1969, a 33.8 percent decrease, while the number of farms with sales over $2,500 decreased by 147,280, a 16.2 percent decrease. The pressure on small farms has resulted in a rate of decline more than double the rate of those with sales over $2,500 (Figure 27).

The proportion of farms with sales of less than $2,500 varies widely among the states. For example, over 42 percent of the farms in Michigan reported sales less than $2,500, while less than 9 percent of North Dakota farms fell below $2,500 sales in 1969. This represents a significantly different level of part-time farming in these different states. In general, it also means that there is a significantly higher proportion of low-income families in states with a large proportion of farms with less than $2,500 sales. The concentra-

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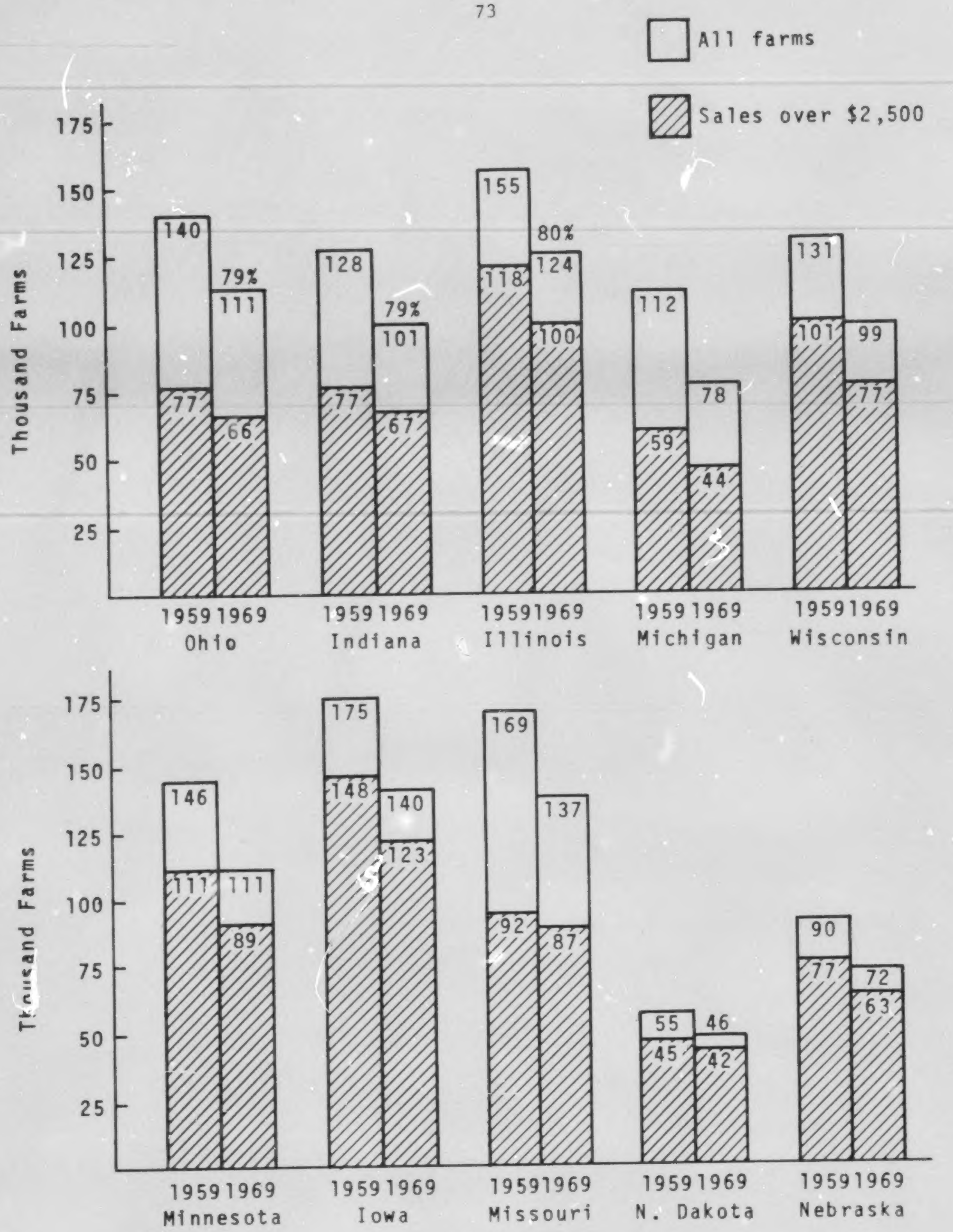
[1] This estimate excludes South Dakota and Kansas because preliminary census reports were not available.



Source: U.S. Census of Agriculture:1969

FIGURE 27: Number of farms in the North Central Region by sales--all farms and farms with sales greater than $2,500:1959 and 1969

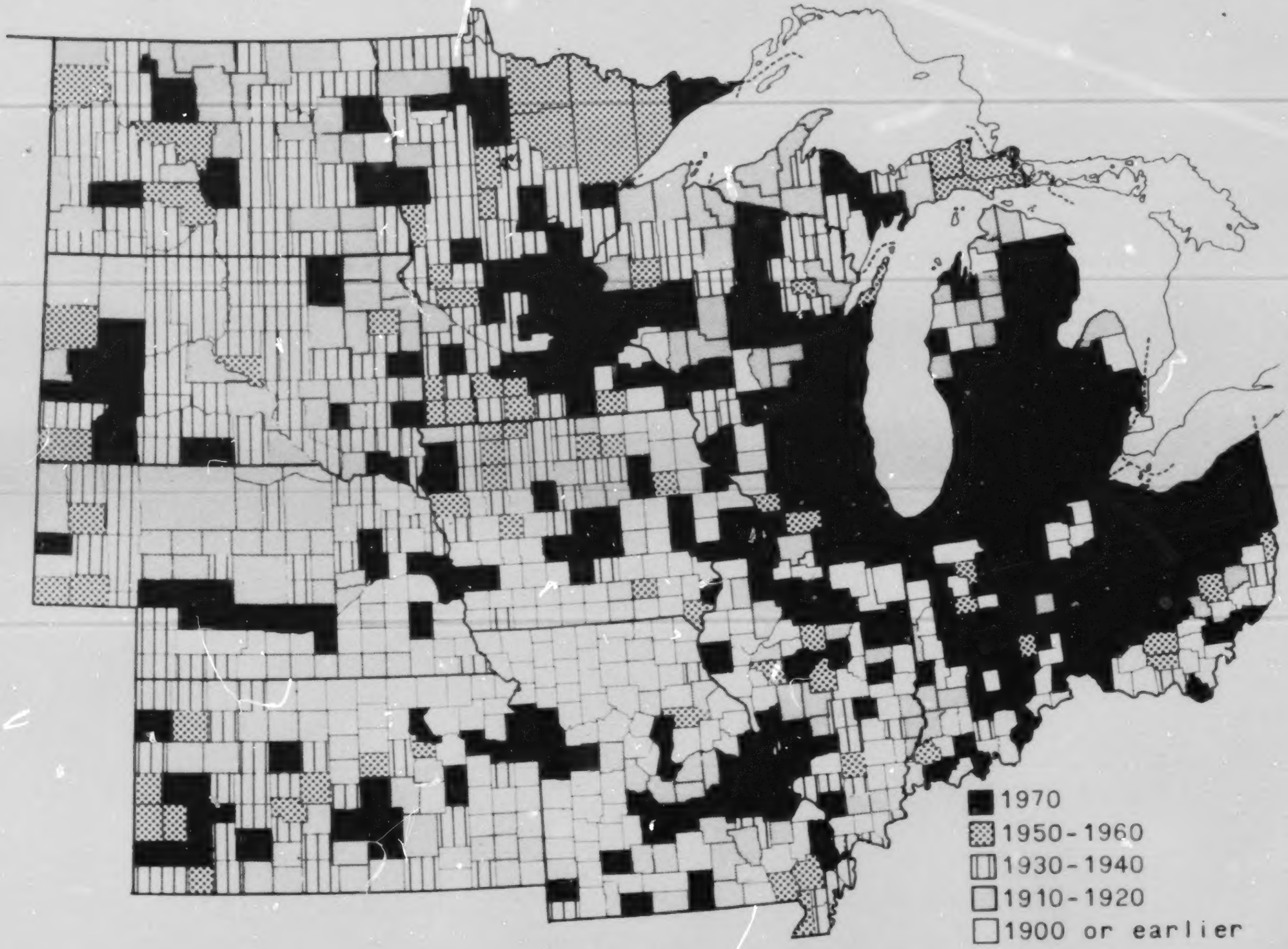
tion of these farm families is primarily east of the Mississippi River. It is also true that these states have a relatively high rate of industrialization which provides off-farm jobs and allows part-time farming to continue. As the trend of rapidly disappearing small farms continues into the next decade, states like Ohio, Indiana, Michigan, and Missouri will experience a sharp reduction in total farm numbers. On the other hand, states like North Dakota and Nebraska will experience much less migration to the industrial centers. These changes in agriculture suggest that various states of the region will face quite different problems in the future. Where North Dakota and Nebraska are not likely to face mass migration of farm families to urban centers, they will face problems of delivering consumer services to a sparse population scattered over a vast area. These types of problems will be examined in the next section on consumer services.

Local and County Government Expenditures

The rising costs of financing public institutions, and the closely associated rising taxes, have been a major concern for rural communities for several years. The problem becomes particularly acute in areas where population and business activity decline, reducing the tax base for the community. The problem of rising per capita taxation is really twofold. First, the per capita tax rate rises because there are few people to tax in declining communities. Second, the cost of supporting public institutions has risen rapidly over the last several years and has compounded the tax problem.

Within the North Central Region, vast areas of North Dakota, South Dakota, Kansas, Minnesota, Iowa, and Missouri are facing the first problem--that of declining population as discussed earlier in the section on population. Many of the counties in these areas reached their maximum by the 1940's. (Figure 28). For the bulk of the counties, declining population has been a reality for several decades and probably will continue in the future.

Expenditures for public institutions are, on the other hand, rising rapidly. Only four counties in the North Central Region experienced a decline in per capita expenditures by local governments during the period 1957-1967. Only 19 counties in the region experienced a rise in per capita expenditures of less than 18.6 percent (the rate of inflation from 1957-1967) during the 10-year period. This leaves over a thousand counties with local government expenditures increasing faster than the inflation rate. Over 900 of these counties experienced increases in excess of 50 percent, of which over 375 counties had increases of over 100 percent in per capita expenditures.


1970
1950-1960
1930-1940
1910-1920
1900 or earlier

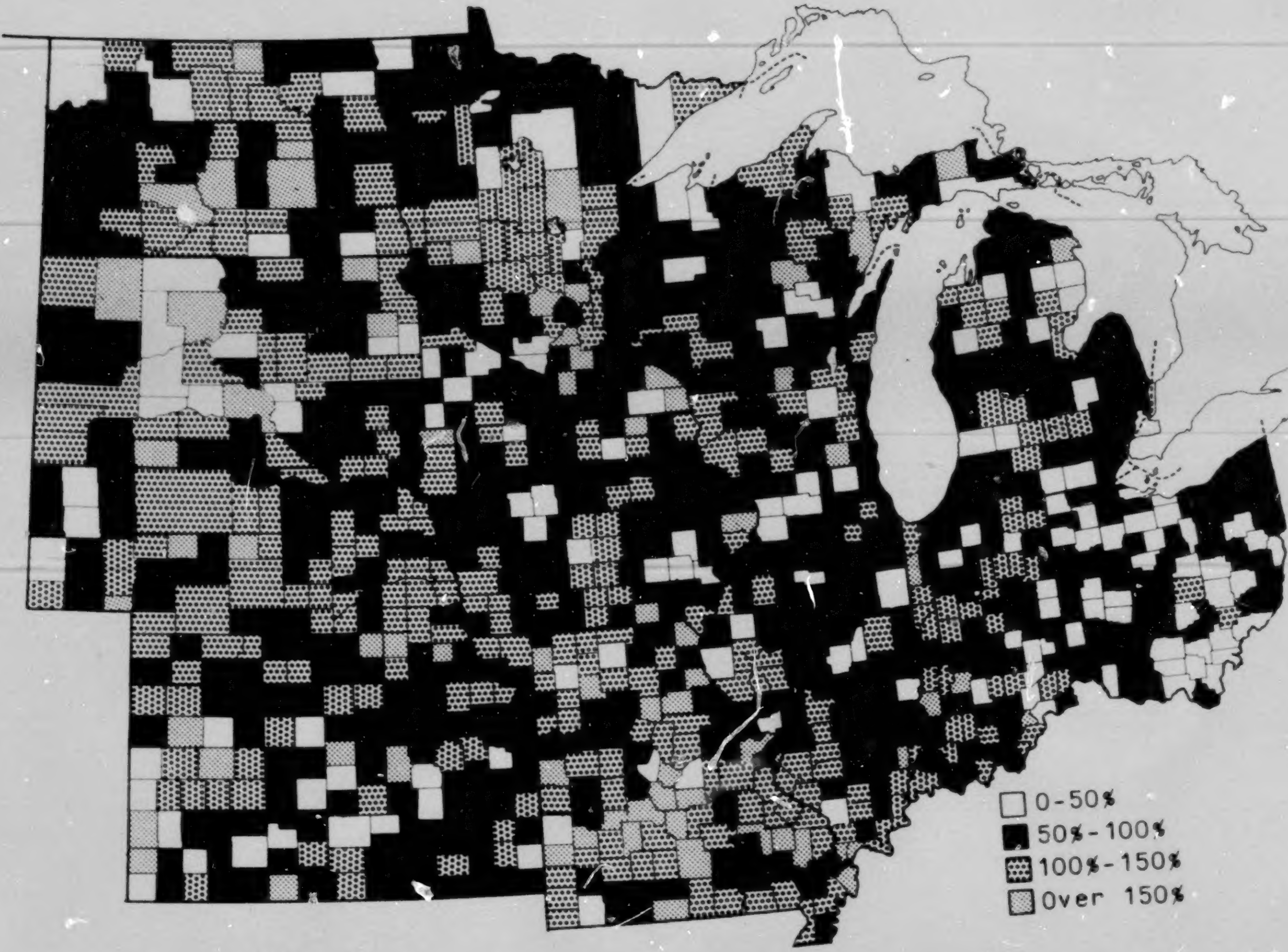
Source: U.S. Census of Population

FIGURE 28. Year each county of the North Central Region reached maximum population

County expenditure patterns

Where are the areas with the rapid increases in local government costs? Actually, they are scattered throughout the region, but a definite pattern is distinguishable (Figure 29). Ohio, one of the most densely populated states, has only two counties showing increases in expenditures of 100 percent or more, while in the sparsely populated states of Nebraska and Missouri more than half of the counties have increases of more than 100 percent. The remaining nine states of the region have at least a fourth of their respective counties with increases over 100 percent. With obvious exceptions, the change in amount of per capita expenditures for local governments was low in Ohio and increased across the region to the west.

It does not necessarily follow that the highest cost of local governments is now experienced in the most sparsely populated western states and the lowest cost in in the densely populated eastern states. In fact, Missouri ranked first (lowest per capita) in local government expenditures in 1967 with $244.17 (Table 8). Missouri was closely followed by South Dakota, North Dakota, Ohio, and Indiana which all had per capita expenditures below $266. The highest per capita expenditure does occur in the relatively sparsely populated state of Minnesota, which spent an average of $372.35 per person. Michigan and Wisconsin are close to Minnesota with expenditures of $327.23 and $356.75, respectively. The indi-


☐ 0-50%
■ 50%-100%
▨ 100%-150%
▨ Over 150%

Source: *U.S. Census of Governments*

FIGURE 29: Percent change in per capita local and county government expenditures by county in the North Central Region: 1957-1967

Table 8. Per capita expenditures for all purposes by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	158.57	265.01	106.44	67.1
Indiana	134.98	265.21	130.23	96.5
Illinois	161.07	270.59	109.52	68.0
Michigan	170.17	327.23	157.06	92.3
Wisconsin	189.41	356.75	167.34	88.3
Minnesota	185.51	372.35	186.84	100.7
Iowa	144.34	295.01	150.67	104.4
Missouri	115.11	244.17	129.06	112.1
North Dakota	131.03	263.43	132.40	101.0
South Dakota	125.75	250.50	124.75	99.2
Nebraska	133.88	289.85	155.97	116.5
Kansas	167.49	295.72	128.23	76.6

Source: Census of Governments

vidual county situation is summarized in Figure 30.

The correlation coefficient for local government expenditures and population density for counties with at least 50 percent of the population classified as urban[1] was 0.16. The equivalent correlation coefficient for counties with a population at least 50 percent rural was -0.24. Therefore, the cost of local government is more closely related to the population density in the rural areas than in the urban centers. Furthermore, it is the case that in 1967 the more sparsely populated counties were, in general, experiencing the highest total cost of local government, as the average per capita expenditures for rural counties was $284.84 and for urban counties, $274.52.

Several variations between rural and urban counties are hidden by the aggregate government expenditure figures. For example, per capita expenditures on natural resources is more negatively correlated with population density in the rural counties (-0.25) than in the urban counties (-0.12). Likewise, per capita cost of highways goes up more rapidly with a decline in population density in rural counties (-0.34) than in urban counties (-0.21).

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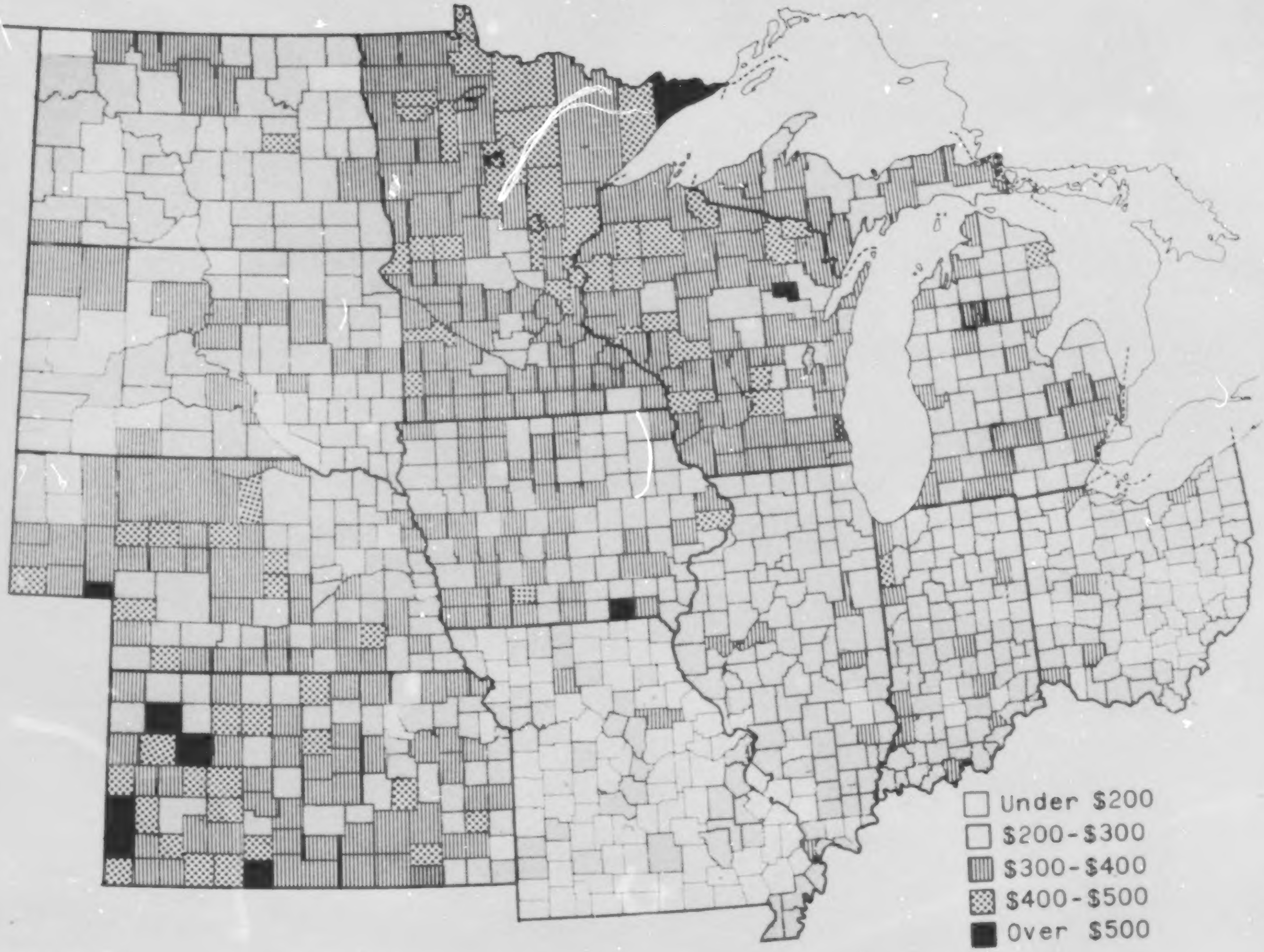
[1] Urban counties totaled 293, rural counties totaled 732, and 30 counties were deleted from the file because expenditure data was not available for 1967. See Appendix Table A.1 for the county designations.



☐ Under $200
☐ $200-$300
▥ $300-$400
▨ $400-$500
■ Over $500

Source: U.S. Census of Governments

FIGURE 30: Per capita expenditures by local and county governments by county in the North Central Region: 1967

The correlation coefficients for expenditures on education and welfare with population density formed a different pattern. For both natural resources and highways, urban and rural county density are negatively correlated with per capita expenditure. This means that as population density falls, cost goes up; vice versa, when density goes up, cost goes down. With education, however, expenditures are negatively correlated with density in the rural counties (-0.16) and positively correlated with density in the urban counties (0.03). Likewise, expenditures for welfare had a negative correlation with density for rural counties (-0.18) and a positive correlation for urban counties (0.04).

Since the rural counties have an average density less than the urban counties (32.4 versus 264.5 persons per square mile), this combination of correlation coefficients implies a "U" shaped cost curve. For thinly populated rural counties, cost falls as density increases. However, at some higher level of density, as experienced in the urban counties, cost begins to increase again.

Expenditures for hospitals were just the opposite of welfare and education expenditures. In this case, the correlation coefficient was positive for rural counties (0.07) and negative for urban counties (-0.001) which implies a reversed "U" shaped cost curve for hospitals. The correlation coefficients indicate that per capita expenditure goes up with the population density that exists in sparsely populated rural counties and goes down with population density in the heavily populated urban counties. This gives rise to minimum hospital cost at either low or high population density but not between.

Expenditures for health services were positively correlated with population density in both rural (0.05) and urban (0.25) counties. This points out that as people group together in dense residential patterns, the cost of health services goes up. The same is true for police protection, with correlation coefficients of 0.16 and 0.64 respectively for rural and urban counties. For all of the classes of local government expenditure, police protection was the most highly correlated with population density. Again, the positive coefficients for both rural and urban counties implies an ever increasing expenditure as density increases.

And finally, expenditures for parks and recreation, interest on general debt, and expenditures for correction facilities had positive correlations with density for both rural and urban counties. For parks and recreation the rural and urban correlations respectively were 0.11 and 0.39; for interest on general debt; 0.14 and 0.34, and for correction expenditures; 0.03 and 0.37.

In summary, expenditures for health, police protection, parks and recreation, correction, and interest on general debt were all positively correlated with population density in both rural and urban counties. Therefore, these expenditures increase as the population migrates from sparse rural areas to dense urban centers. In contrast, expenditures for highways and natural resources were negatively correlated with population density in both rural and urban counties. These expenditures decline as more dense living patterns are established. Total expenditures and expenditures for education and welfare were negatively correlated with population at low density levels (rural areas) and positively correlated with high density levels (urban areas). This implies a standard "U" shaped cost curve with an optimum density pattern where cost per person can be minimized. Hospital expenditures stand alone as being positively correlated with density at low levels (rural) and negatively correlated at high levels (urban). Of the 10 classes of expenditures plus the total, only expenditures for hospitals indicates the least cost at low or high levels with the highest cost resulting between.

State expenditure patterns

Average state per capita expenditures in 1967 by local government varied from a low of $244.17 in Missouri to a high of $372.35 for Minnesota. Table 8 shows that the two states, Missouri and Wisconsin, had the lowest and highest per capita expenditures of the region for 1957. The states with the lowest per capita expenditures for 1957 (Missouri, South Dakota, North Dakota, Nebraska, and Indiana) in general had the highest relative increases during the ten-year period. Ohio had the smallest relative increase with 67.1 percent and Illinois was a close second with a 68 percent increase in per capita expenditure. Five states (Minnesota, Iowa, Missouri, North Dakota, and Nebraska) experienced a greater than 100 percent increase in per capita expenditures.

Per capita expenditures for education by local governments more than doubled in 10 of the 12 states of the Region during the 1957 to 1967 period. Only Ohio and Illinois with 86.3 and 93.6 percent relative increases, respectively, were not faced with doubled educational costs (Table 9). Comparing Table 8 with Table 9, educational costs account for over half the total costs of local governments for most states. North Dakota, a state which experienced a net decrease in population in the 1960's, had the highest relative per capita increase in educational cost with over a 130 percent increase.

Expenditures for public welfare during the 10-year period differed greatly among the states (Table 10). The variance is explained by the degree of responsibility for welfare programs that local governments have among the various states. Low per capita expenditures for public welfare indicate that welfare programs are more of a state rather than local government responsibility.

Table 9. Per capita expenditures for education by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$71.54	$133.26	$ 61.72	86.3
Indiana	66.46	144.36	77.90	117.2
Illinois	67.57	130.84	63.27	93.6
Michigan	79.72	171.55	91.83	115.2
Wisconsin	64.38	147.54	83.16	129.2
Minnesota	80.87	176.07	95.20	117.7
Iowa	72.37	156.08	83.71	115.7
Missouri	58.73	134.15	75.42	128.4
North Dakota	62.01	142.92	80.91	130.5
South Dakota	66.05	146.72	80.67	122.1
Nebraska	61.17	132.63	71.46	116.8
Kansas	72.96	149.17	76.21	104.5

Source: Census of Governments

Table 10. Per capita expenditures for public welfare by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$10.03	$14.69	$ 4.66	46.5
Indiana	10.94	16.26	5.32	48.6
Illinois	5.34	7.47	2.13	39.9
Michigan	4.68	10.88	6.20	132.5
Wisconsin	16.76	25.14	8.38	50.0
Minnesota	21.65	45.49	23.84	110.1
Iowa	3.33	6.62	3.29	99.8
Missouri	0.64	1.19	0.55	85.9
North Dakota	2.22	4.45	2.23	100.5
South Dakota	2.64	2.79	0.15	5.7
Nebraska	12.91	24.36	11.4	88.7
Kansas	20.52	28.62	8.10	39.5

Source: Census of Governments

Michigan had the largest relative increase with 132.5 percent while South Dakota had the smallest increase with 5.7 percent. Minnesota, Iowa, Missouri, North Dakota, and Nebraska had increases ranging from approximately 85 to 110 percent. The remaining states had increases of about 40 to 50 percent.

Expenditures for highways experienced a smaller change with the highest increase being 62.9 percent in Wisconsin and the lowest being 1.4 percent increase in Illinois (Table 11). The expenditure change clusters in two groups.

Wisconsin, Minnesota, Iowa, Nebraska, South Dakota, and Indiana are in the higher group with increases over 45 percent. Most of the remaining states had increases of less than 25 percent.

Expenditures for hospitals had the highest variation of any of the expenditure functions (Table 12). Nebraska had an increase of more than 200 percent while North Dakota had a decline of 50 percent. Iowa, Indiana,and Kansas had increases of over 100 percent. The remaining states had increases ranging from approximately 47 to 72 percent. North Dakota was atypical in that it had per capita expenditures of less than 40 cents while all other states had expenditures ranging from 3 to 18 dollars.

Expenditures for health services changed very little during this period and were a very small part of the expendi-

Table 11. Per capita expenditures for highways by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$19.45	$22.96	$ 3.51	18.0
Indiana	14.06	20.43	6.37	45.3
Illinois	23.54	23.88	0.34	1.4
Michigan	21.79	27.17	5.38	24.7
Wisconsin	37.88	61.69	23.81	62.9
Minnesota	24.39	39.50	15.11	62.0
Iowa	30.41	48.29	17.88	58.8
Missouri	10.89	15.40	4.51	41.4
North Dakota	34.05	43.54	9.49	27.9
South Dakota	26.06	38.10	12.04	46.2
Nebraska	23.15	36.65	13.50	58.3
Kansas	27.57	34.34	6.77	24.6

Source: Census of Governments

Table 12. Per capita expenditures for hospitals by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$ 6.22	$ 9.63	$ 3.41	54.8
Indiana	6.88	16.08	9.20	133.7
Illinois	5.96	8.75	2.79	46.8
Michigan	10.57	18.17	7.60	71.9
Wisconsin	11.45	15.86	4.41	38.5
Minnesota	9.40	12.98	3.58	38.1
Iowa	5.22	13.49	8.27	158.4
Missouri	6.65	12.18	5.53	83.2
North Dakota	0.38	0.19	-0.19	-50.0
South Dakota	2.32	3.44	1.12	48.3
Nebraska	3.71	12.25	8.54	230.2
Kansas	5.31	11.63	6.32	119.0

Source: Census of Governments

tures by local governments (Table 13). Per capita expenditures declined in Minnesota by $1.50 and increased in Missouri by $1.04. All other states had increases of less than a dollar on a per capita basis.

Changes in expenditures for police protection had the most consistent pattern of all the categories (Table 14). All the states relative increases ranged from about 60 to 100 percent. The smallest change in per capita expenditures was $2.37 for North Dakota and the largest was $6.56 for Illinois. The relatively densely populated states tend to have an expenditure level in 1967 of over $10 while the sparsely populated states were generally less than $8.

With the exception of Michigan and Illinois, the changes in expenditures on natural resources followed a consistent pattern with increases in the range from 50 to 120 percent (Table 15). Illinois had an unusually small increase of only 15.4 percent while Michigan had an increase of over 300 percent. Again these expenditures were a minor part of the total expenditure pattern, as only Nebraska, North Dakota and Kansas had per capita expenditures over $3 in 1967.

Finally, expenditures for interest on general debt had the highest relative increases of any expenditure category during the 1957 to 1967 period (Table 16). Only Kansas had a relative increase less than 100 percent. North Dakota, Indiana, Nebraska, Wisconsin, Minnesota, Michigan, South

Table 13. Per capita expenditures for health services by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$ 1.42	$ 2.18	$ 0.76	52.5
Indiana	0.83	0.87	0.04	4.8
Illinois	1.10	1.97	0.87	79.1
Michigan	1.54	2.51	0.97	63.0
Wisconsin	1.98	2.76	0.78	39.4
Minnesota	3.25	1.75	-1.50	-46.2
Iowa	0.82	1.27	0.45	54.9
Missouri	1.21	2.25	1.04	86.0
North Dakota	0.87	1.59	0.72	82.8
South Dakota	0.51	1.12	0.61	119.6
Nebraska	0.81	1.62	0.81	100.0
Kansas	1.24	2.07	0.83	66.9

Source: Census of Governments

Table 14. Per capita expenditures for police protection by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$6.93	$10.89	$ 3.96	57.1
Indiana	5.18	8.13	2.95	56.9
Illinois	9.10	15.66	6.56	72.7
Michigan	8.56	13.76	5.20	60.8
Wisconsin	8.29	14.22	5.93	71.5
Minnesota	5.22	9.01	3.79	72.6
Iowa	3.82	7.06	3.24	84.8
Missouri	6.33	12.59	6.26	98.9
North Dakota	3.96	6.33	2.37	59.8
South Dakota	3.49	6.24	2.75	78.8
Nebraska	4.08	7.57	3.49	85.5
Kansas	4.62	7.88	3.26	70.6

Source: Census of Governments

Table 15. Per capita expenditures for natural resources by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$ 0.43	$0.72	$ 0.29	67.4
Indiana	0.62	1.15	0.53	85.5
Illinois	0.39	0.45	0.06	15.4
Michigan	0.62	2.51	1.89	304.8
Wisconsin	0.54	1.26	0.72	133.3
Minnesota	1.38	2.14	0.76	55.1
Iowa	1.78	2.76	0.98	55.1
Missouri	0.35	0.51	0.16	45.7
North Dakota	2.07	4.35	2.28	110.1
South Dakota	1.14	2.15	1.01	88.6
Nebraska	2.34	5.39	3.05	130.3
Kansas	2.15	3.57	1.42	66.0

Source: Census of Governments

Table 16. Per capita expenditures for interest on general debt by local governments in the North Central Region, by state: 1957 and 1967

State	1957	1967	Change	Percent Change
Ohio	$ 4.21	$ 8.98	$ 4.77	113.3
Indiana	1.97	6.63	4.66	236.5
Illinois	5.04	11.34	6.30	125.0
Michigan	3.53	10.91	7.38	209.1
Wisconsin	2.93	9.34	6.41	218.8
Minnesota	4.35	13.55	9.20	211.5
Iowa	2.03	6.08	4.05	199.5
Missouri	3.10	8.58	5.48	176.8
North Dakota	2.15	9.24	7.09	329.8
South Dakota	1.07	3.30	2.23	208.4
Nebraska	2.40	8.08	5.68	236.7
Kansas	4.05	6.81	2.76	68.1

Source: Census of Governments

Dakota, and Iowa experienced increases of approximately 200 or more. In 1967 only South Dakota with $3.30 had a per capita expenditure level less than $6.

In summary, the big per capita expenditures are going for education, public welfare, highways, and hospitals. In terms of percentage increase over the 10-year period, interest on general debt showed the highest consistent increases in all of the states. As given in Table 8, the resulting rates of increases in expenditures were grouped roughly between 70 and 110 percent. When considered against the inflation rate of 18.6 percent for that period, the increases in public expenditures rose much more rapidly than general price levels. It is little wonder that local citizens are feeling a greater tax bite and are concerned about alternative ways of providing service at a lower cost to the taxpayer and/or recipients.

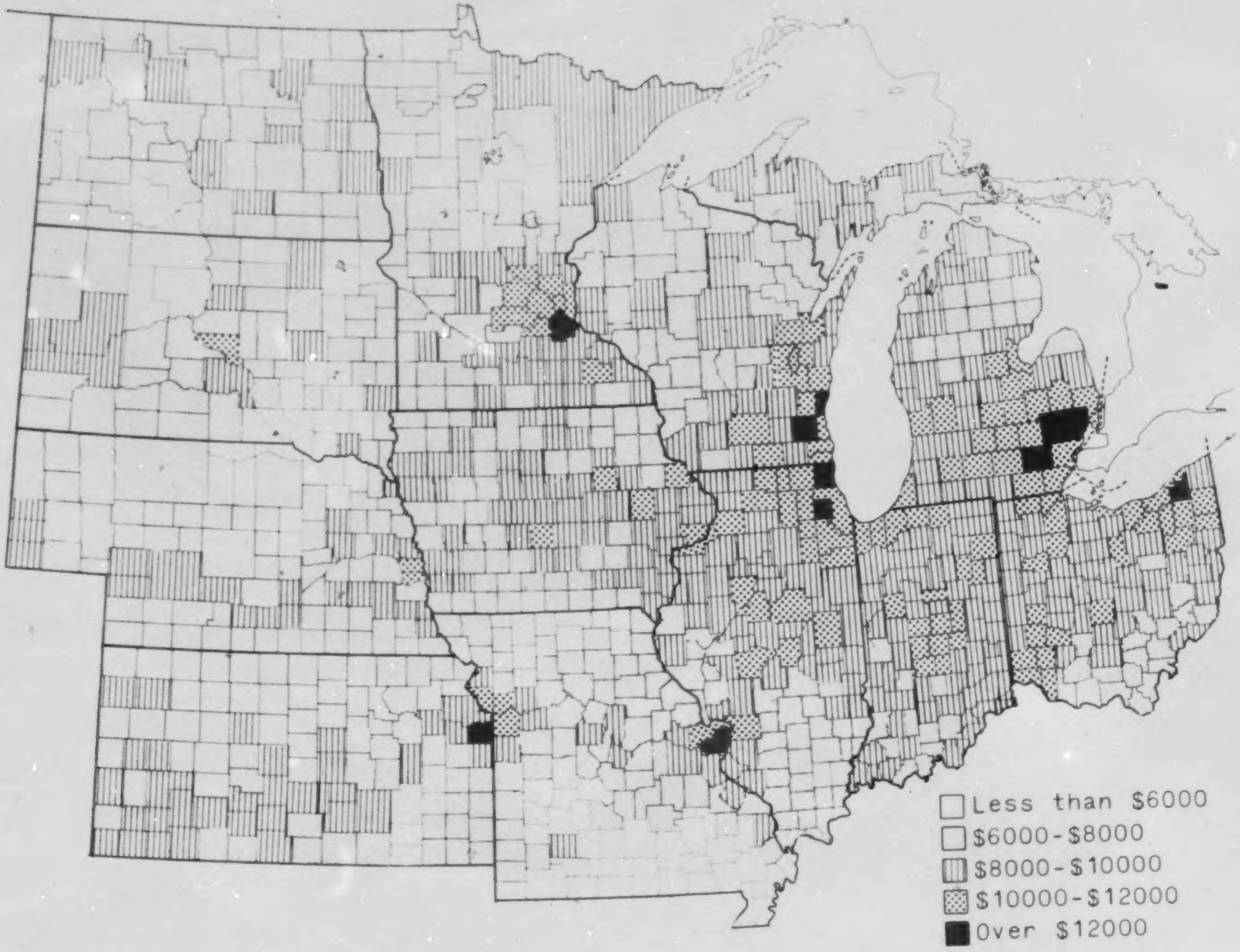
Income Distribution

Two aspects of income distribution are of primary importance when studying economic and social conditions of a particular region. One aspect is the aggregate income generated per person within the region, as indicated by average per capita income level, and the other is the statistical distribution around that average. An estimate of the median income level provides an indication of the output of the overall economic system, but it does not indicate the rate at which residents of the region share in basic economic activity. Additional distribution data must be used to determine how evenly the income is shared.

Median family income

The median family income for the North Central Region was $8,027 in 1970. Some interesting distributional patterns have developed in the region as indicated in Figure 31. For example, all 12 counties that have an average family income of more than $17,000 are associated with major metropolitan centers. Likewise, the counties with family incomes of $10-17,000 are concentrated in the manufacturing belt or around cities such as St. Louis, Minneapolis, and Kansas City. There are many counties in the western states with $8-10,000 of income, but the heaviest concentration is in Ohio, Indiana, Illinois, and Michigan. Basically, the high income levels are associated with dominantly urban areas.

Combining knowledge of the income distribution with the earlier discussion on population density, we find the rural areas characterized by low income families scattered sparsely over the open spaces. Without comparable levels of income, the residents of rural areas are unable to compete for goods and services, thus experiencing a decline in quality of life. With the concentration of rural areas west of the Mississippi River, this again points out why the western states are feeling significant pressure to move forward with rural de-



☐ Less than $6000
☐ $6000-$8000
▥ $8000-$10000
▨ $10000-$12000
■ Over $12000

Source: U.S. Census of Population

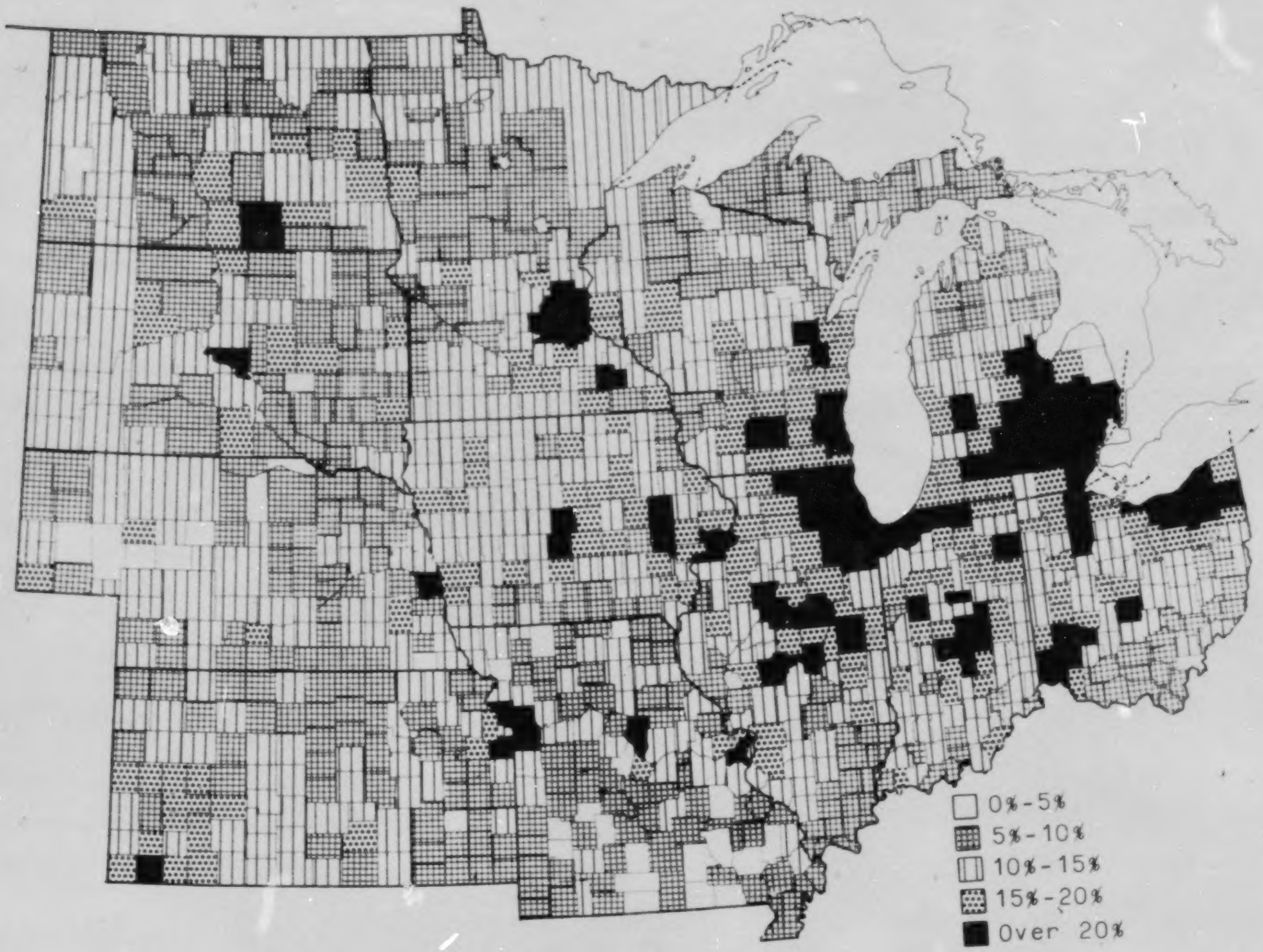
FIGURE 31: Median family income by county in the North Central Region: 1970

velopment.

The real pressure for rural development centers around the question of how to provide economical services to low income families scattered sparsely over the rural countryside. If the high incomes were dominately in sparsely populated rural areas, it would be conceivable to provide services to the rural areas even if the cost was higher than in more densely populated areas. However, the reverse is true, and services are costing the rural people more than their city cousins who have a higher income. As delivery systems become more and more costly in the rural areas, they are further depressing the real income level of the rural people.

Percent of families with income over $15,000

A quick check of the distribution of counties with relatively high percentages of high income families confirms a concentration in the manufacturing belt (Figure 32). The regional average for the percent of families with more than $15,000 income is 12.8 with many counties having more than 15 percent of the families in the higher income bracket. As with the concentration of relatively high average income, however, the counties with a high percent of families with income greater than $15,000 are concentrated in the narrow manufacturing belt rather than evenly distributed throughout the region.


0%-5%
5%-10%
10%-15%
15%-20%
Over 20%

Source: U.S. Census of Population

Figure 32: Percent of families with income of over $15,000 by county in the North Central Region: 1970

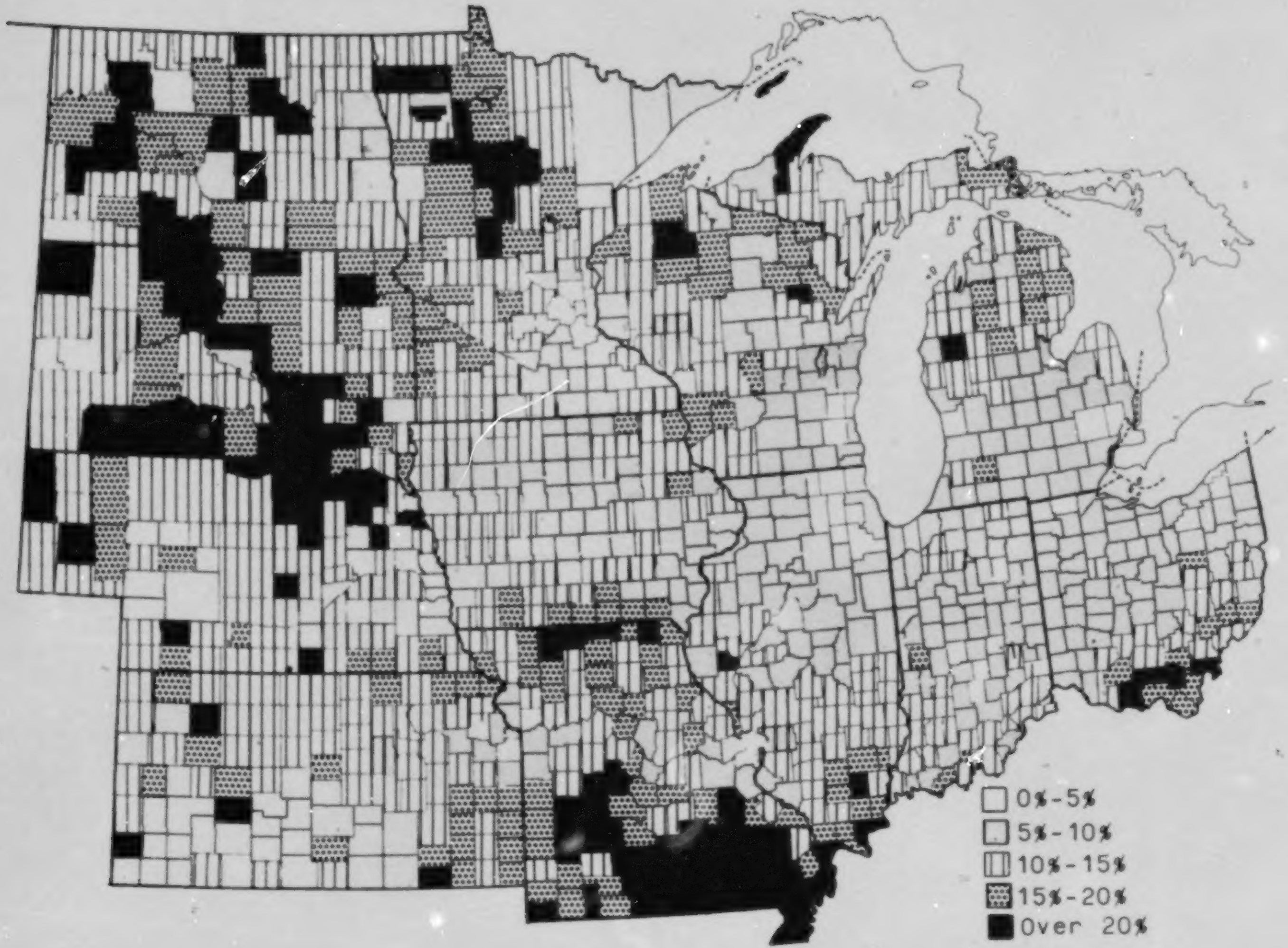
Nebraska and Missouri contain all but seven of the counties where less than 5 percent of the families have $15,000 of income. The majority of the remaining counties in North and South Dakota, Kansas, Nebraska, Minnesota, Iowa, and Missouri have from 5-15 percent of the families with income over $15,000. As with the high average income, the counties with a high percent of families with $15,000 of income tend to be concentrated around major metropolitan centers.

Percent of families with poverty income

The other side of the income distribution pattern are the low income families. For the most part, the central theme of rural development is built around this group of families. This is the group which is having the most difficulty achieving or maintaining some minimum qulaity of life in the region.

Unfortunately, from the standpoint of service delivery, the pattern of counties with concentrations of low income families (Figure 33) is almost a perfect opposite of the high income pattern (Figure 32). That is, the two figures indicate that concentrations of high income are associated with small amounts of poverty income, and high concentrations of poverty income are associated with small percentages of high income.

From a policy standpoint this relationship is significant because it indicates that in general, if income level can be raised for part of the population, the level will be


0%-5%
5%-10%
10%-15%
15%-20%
Over 20%

133

134

Source: U.S. Census of Population

FIGURE 33: Percent of families with income below poverty level by county in the North Central Region: 1970

raised for the population in general. The relationships exhibited in the two figures tend to refute any arguments that development of a section of the population with high income will be associated with the development of a section of low income. On the contrary, there is little evidence to support such a hypothesis. Therefore, from an income standpoint, it is realistic to discuss rural development as a means of improving welfare. If a business activity can be developed or relocated in an area with relatively low income, it is likely that the whole population will benefit from the increased income levels.

Labor force, unemployment, and income level

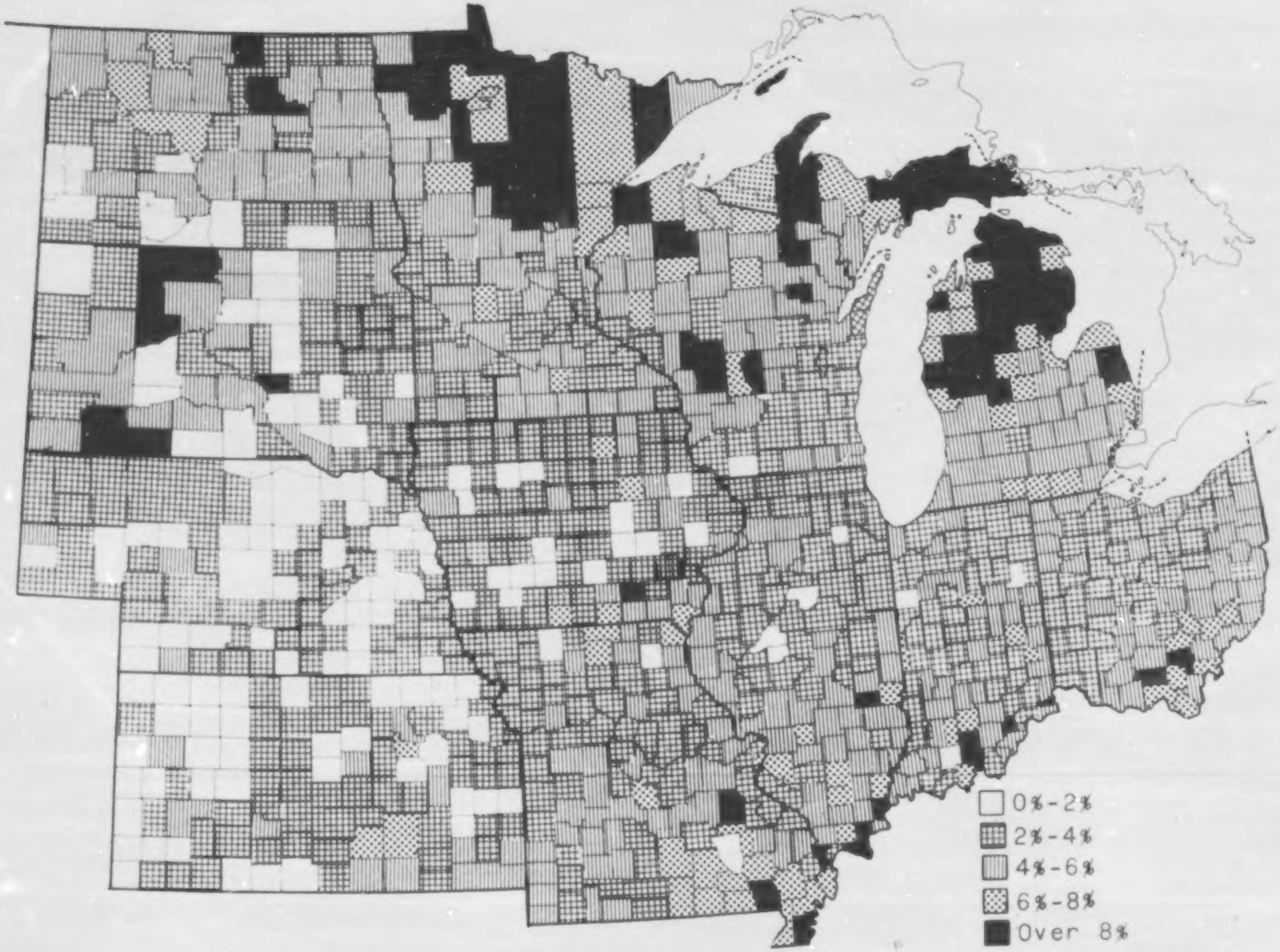
Still another indicator of actual and potential income distribution is the size of the labor force within a region and the proportion of that labor force which is gainfully employed.

Although the number of males 16 years and older is not a perfect measure of the total labor force, it is highly correlated with the total. In the North Central Region a large portion of the counties have less than 5,000 people in the labor force. This is especially true in the four western states where only about 10 counties per state exceed the 5,000 level. In contrast, southern Michigan, Ohio, Indiana, Illinois, and southern Wisconsin have numerous counties with more than 20,000 in the labor force. In Missouri, Iowa, and

Minnesota the only counties which have a labor force of this magnitude are those which contain or are immediately adjacent to a major metropolitan center, as shown in Figure 34.

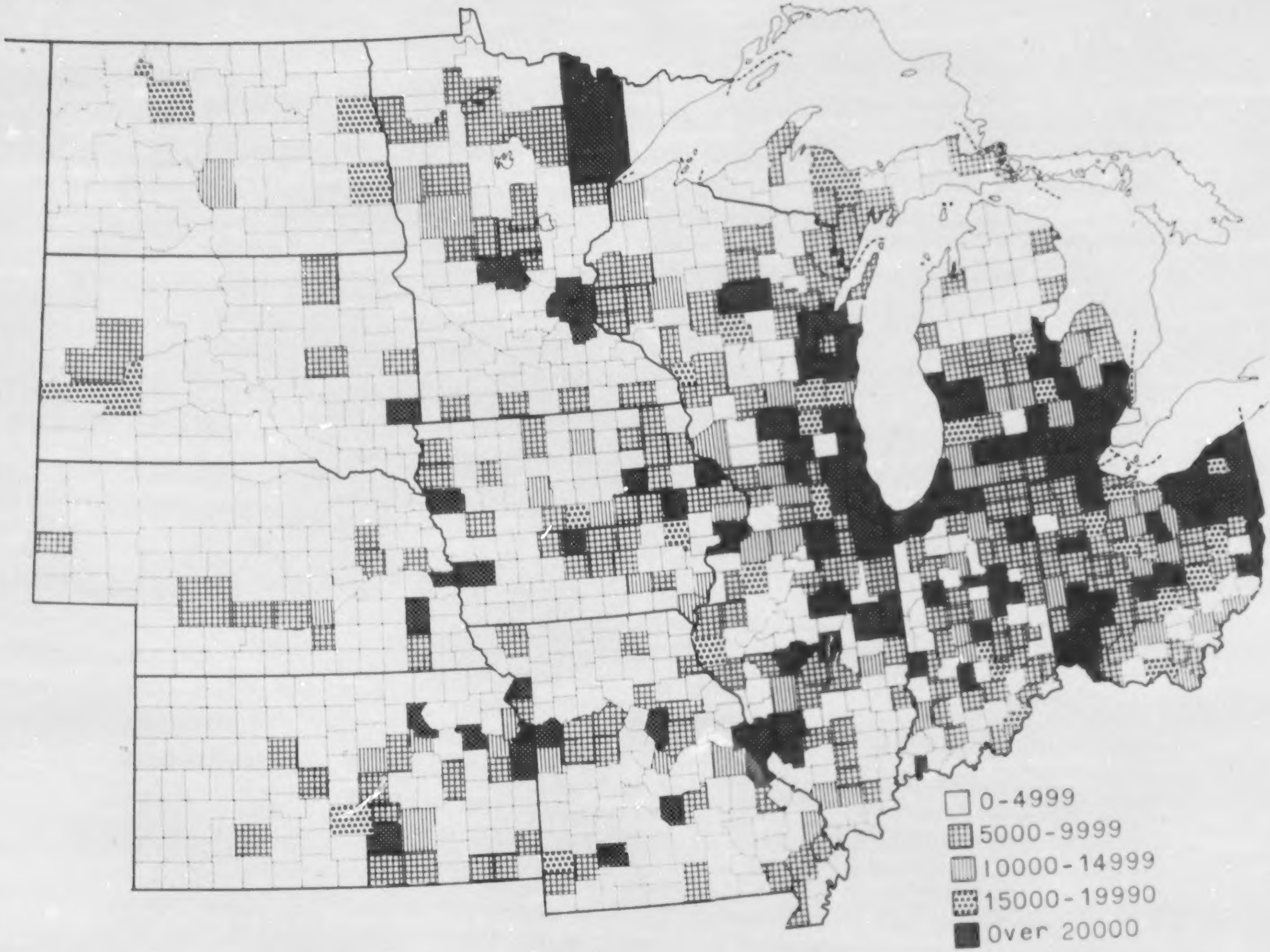
The size of the labor force gives an indication of the potential employment and income of an area, but unemployment rates indicate the extent to which the labor force is actually engaged in productive activities. Most of the region is dominated by counties with less than 4 percent unemployment, as shown in Figure 33. Iowa and the four western states have several counties with less than 2 percent of the labor force unemployed. When combined with Figure 35, it is clear that many of these counties are reporting less than 100 people unemployed. Although there is a tendency in dominately rural areas to have underemployment more than unemployment, an unemployment rate of 2 percent with a labor force of less than 5,000 people does not suggest much potential for increased income through increased job opportunities. With less than 100 unemployed people per county, the surplus labor pool for a company to capture through relocation is relatively small.

There are exceptions to the general employment situation in the region, however. Southeastern Missouri has three counties with more than 8 percent unemployment and several more with 6-8 percent unemployment. Likewise, the area just across the river in southern Illinois has a similar situation.


0%-2%
2%-4%
4%-6%
6%-8%
Over 8%

Source: U.S. Census of Population

FIGURE 34: Civilian unemployment rate by county in the North Central Region: 1970


0-4999
5000-9999
10000-14999
15000-19990
Over 20000

Source: U.S. Census of Population

FIGURE 35: Number of males sixteen years and older in the labor force by county in the North Central Region: 1970

Northern Michigan has the largest concentration of unemployment with more than 30 counties having over 8 percent unemployment and several more with 6-8 percent unemployment. Wisconsin has a scattering of counties with more than 6 percent unemployment as do Ohio and Indiana. In general, these high unemployment areas do correspond to relatively low income areas as well. Consequently, increasing employment opportunities in these areas apparently would help the income distribution problem.

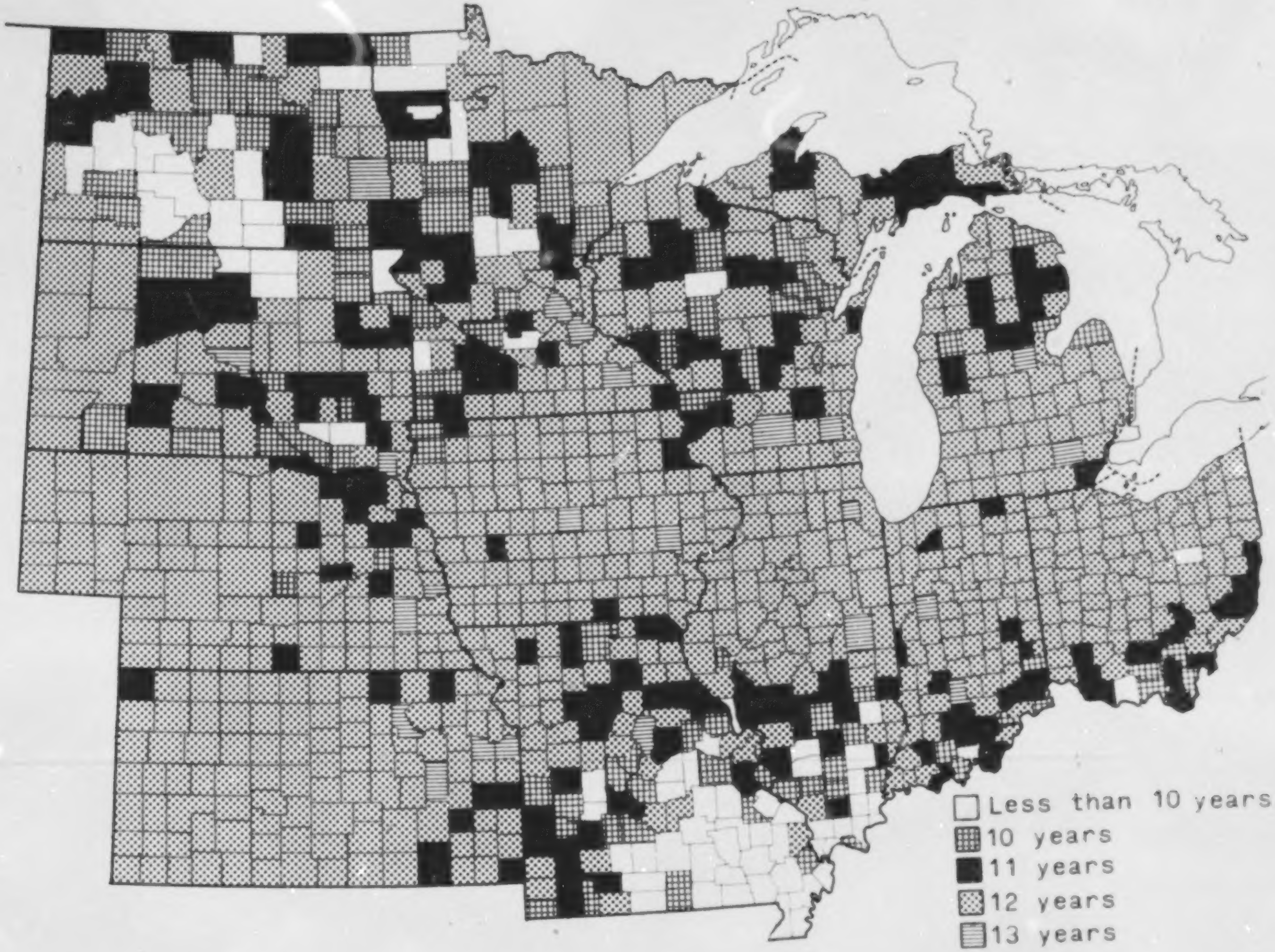
Despite the fact that some of the high unemployment areas do correspond to low income areas, planners and policy makers must keep in mind that extensive unemployment is not widespread throughout the Region and certainly it is not exclusively associated with rural areas. On the contrary, much of the region is classified as rural area but has unemployment far below the national average.

Median years of school completed and income level

Because amount of education is relatively highly correlated with income level (0.53 for all counties of the region), it is an indicator of potential earning power. In general, increasing the amount of education increases the quality of the labor resource and therefore increases potential and acutal earning power. As such, amount of education provided by a community is a measure of the quality of the labor force which it can provide and the expected income level.

One note of warning must be sounded when surveying the level of education in the region. The median years of education in a given area is not necessarily a direct measure of the amount of education provided. The census statistic is a measure of the current population's education and does not reflect the amount of migration in or out of the area which may be directly related to differentiated levels of education. As reported, the census statistic is a better indicator of the quality of the labor force available than effectiveness of the educational system except in certain cases.

Obvious cases which must be carefully interpreted are the scattering of counties throughout the region with median years of education greater than 13. A quick survey of Figure 36 indicates that these counties are primarily those in which a major university is located. By reporting the students, all with more than 12 years of education, and the staff with considerably more than 12 years, the average is skewed upward significantly. The real question is what portion of this group can be considered a part of the labor force of the area? For obvious reasons, most of the staff members can be, and most of the students can not. Certainly most of the university communities do utilize part of the student labor force, but only a small portion of students are hired in the areas of specialized training where salaries would be relatively higher.


Less than 10 years
10 years
11 years
12 years
13 years

Source: U.S. Census of Population

FIGURE 36: Median years of school completed by those 25 years and older by county in the North Central Region: 1970

What does the median years of education indicate? It really indicates a combination of the opportunities to receive an education and the opportunities to utilize the education in a given area. If increasing education does not increase income in a specific area, at least it provides additional mobility to allow migration to areas where the training can be utilized.

By farm, the majority of the counties contain a labor force having at least 12 years of education for those over 25 years of age. Two areas of the region vary noticeably--one in southern Missouri and Illinois and the other is North and South Dakota and western and central Minnesota. In the southern Illinois and Missouri area there are numerous counties where the median level of education is less than 10 years. This area is also surrounded by several more counties with 10 and 11 years as the median level of education. Similarly, the area in the Dakotas and Minnesota has several counties with less than 10 years of education, but many more in the 10 and 11 year classes. Referring to Figures 31 and 33, these are the areas with a high concentration of low median family income and high percent of families with income below poverty level. In contrast, the areas of the region whose members have 12 or more years of education match very closely with the areas where income is above $6,000 and the percent of families with poverty income is less than 15 percent.

For the most part, the data is not striking or new. It simply supports the often-heard argument that education is a prime weapon with which to attack poverty. Education alone cannot raise the income level and help the distribution problem, but it will increase the quality of the labor force and its potential productivity. Given employment opportunities, the increased productivity will result in higher income levels.

Housing and income level

One of the indirect measures of income level is the quantity and quality of housing available for residents of the region. Housing is singled out because of its significance as a major cost item in the budget of all families. In addition, the historical improvement in housing conditions represents an example of what can be accomplished once a policy objective has been set and appropriate resources are devoted to the cause. Through such programs as FHA, satisfactory housing facilities have been put within the reach of millions of Americans who would otherwise be unable to afford them. It is particularly appropriate at this time to use housing as an indicator of income level and the emphasize the contrast with the nation's failure to make similar gains toward development of rural areas.

Year-round housing units in the North Central Region totaled 18,666,874 for 1970 (Table 17). This represents an increase of 14.6 percent or 2,378,359 units above the 1960 inventory. During this same period, year-round housing units for the United States as a whole increased 19.5 percent. Of the four regions of the United States, the North Central Region was a distant third when ranked by the magnitude of relative increase in year-round housing units.

Comparing the relative increases of population and housing for the past decade, it is apparent that the housing inventory grew faster than population throughout the United States. The result is that population per household declined from 1960 to 1970. For the United States, population per household has declined continuously through this century from a high of 4.8 persons per occupied housing unit in 1900 to 3.2 for 1970.

Comparing the difference in relative changes of population and year-round housing units for the states of the North Central Region, nine states have net differences in the range of 4 to 6 percent. Only Illinois, the most populous state, has a net difference of less than 4 percent. The two Dakotas have the largest net differences, as both had relative increases of housing inventory more than 8 percent above the relative change in population.

Table 17. Year-round housing units in the North Central Region, by state: 1960 and 1970

	1960	1970	Percent Change	Percent Population Change
United States	56,583,892	67,656,566	19.5	13.3
Northeast	14,152,919	16,174,966	14.3	9.8
North Central	16,288,515	18,666,874	14.6	9.6
South	16,795,560	20,876,068	24.3	14.2
West	9,320,167	11,938,658	28.1	24.1
Ohio	3,007,481	3,447,168	14.6	9.7
Indiana	1,469,193	1,711,868	16.5	11.4
Illinois	3,245,191	3,692,915	13.8	10.2
Michigan	2,395,654	2,841,827	18.6	13.4
Wisconsin	1,207,039	1,414,105	17.2	11.8
Minnesota	1,046,664	1,218,700	16.4	11.5
Iowa	889,355	954,801	7.4	2.4
Missouri	1,462,202	1,664,123	13.8	8.3
North Dakota	188,097	200,334	6.5	-2.3
South Dakota	209,225	221,720	6.0	-2.2
Nebraska	464,687	511,891	10.2	5.1
Kansas	730,458	787,422	7.8	3.1

Source: Census of Housing

Table 18. Percent of year-round housing units constructed during the last decade, by location: 1960-1970

	Total	Urban	Rural	Population Density
United States	25.0	24.0	27.9	
Northeast	17.6	15.8	25.7	
North Central	21.1	20.9	21.7	
South	30.8	30.2	32.1	
West	31.1	30.9	32.5	
Ohio	21.3	20.7	23.3	259.77
Indiana	22.1	20.5	25.6	143.52
Illinois	20.4	20.2	21.3	198.91
Michigan	21.6	19.5	27.2	156.20
Wisconsin	20.2	20.1	20.5	81.11
Minnesota	22.9	25.0	18.6	48.00
Iowa	16.9	19.9	12.9	50.40
Missouri	24.1	22.9	26.7	67.73
North Dakota	20.6	27.4	15.7	8.92
South Dakota	17.2	21.0	14.4	8.76
Nebraska	20.7	24.6	14.7	19.38
Kansas	19.1	20.5	16.4	27.38

Source: Census of Housing

No state in the region had a relative increase in housing inventory as great as the national average of 19.6 percent, but Michigan was closest with 18.6 percent. Michigan was also the only state in the region that had a population increase that was more than the national average for the past decade.

Table 18 gives the percentage of year-round housing units that were constructed during the last decade for urban and rural classifications. In the United States approximately 1 of every 4 housing units was recently built, but in the North Central Region only about 1 of 5 housing units was constructed during this period. For rural housing, the North Central Region had the lowest percentage of new construction (21.7 percent) for the four regions.

One interesting phenomenon that Table 18 illustrates is that for all states with a population density over 51 persons per square mile, more housing units were constructed in rural areas than in urban areas. Ohio, Indiana, Illinois, Michigan, Wisconsin, and Missouri all had greater percentages of rural housing built during the past decade than urban housing units. The reverse is true for the states with densities less than 51 (Minnesota, Iowa, North Dakota, South Dakota, Nebraska, and Kansas).

The percentage of year-round housing units that were vacant when the 1970 census was enumerated is shown in Table

19. The North Central Region had a slightly lower percentage of vacancies (6.1 percent) than the United States average (6.2 percent). North Dakota and South Dakota, which had net decreases in population for the decade, had the highest percentages with approximately one of every 10 housing units being vacant.

For all states of the region, the rural vacancy rate was higher than the urban rate. The state with greatest divergence between the two rates was Wisconsin with an urban rate of 3.2 percent vacant and 14.4 percent of rural housing units vacant. Only two states, Missouri and Kansas, had urban vacancy rates above 6 percent. All states except Ohio had rural vacancy rates above 7 percent.

Of the four regions of the United States, the North Central Region has the highest rate of home-ownership (Table 20). The percentage of owner-occupied housing units for the North Central Region in 1970 was 68 percent compared to the national average of 62.9 percent. Only Illinois had a lower percentage than the national average with 59.4 percent.

In 1970 there was an even stronger tendency for home-ownership in rural areas of the region. Five states (Ohio, Indiana, Michigan, Wisconsin, and Minnesota) had percentages of owner-occupied housing units that were above 80 percent; i.e., more than four of every five rural housing units in the states were owner-occupied. Every state of the Region had a

Table 19. Vacant year-round housing units: 1970

	Total Vacant Units	Percent	Urban Vacant Units	Percent	Rural Vacant Units	Percent
United States	4,206,819	6.2	2,427,971	4.9	1,778,848	10.1
Northeast	692,178	4.3	446,471	3.4	245,707	8.1
North Central	1,129,618	6.1	621,140	4.6	508,478	9.6
South	1,617,905	7.8	869,317	6.4	748,588	10.3
West	767,108	6.4	491,033	5.0	276,075	13.6
Ohio	157,736	4.6	110,679	4.2	47,057	5.9
Indiana	102,374	6.0	60,319	5.4	42,055	7.2
Illinois	190,777	5.2	144,299	4.7	46,478	7.5
Michigan	188,768	6.6	90,191	4.3	98,577	13.0
Wisconsin	85,301	6.0	30,186	3.2	55,115	14.4
Minnesota	64,754	5.3	27,899	3.4	36,855	9.1
Iowa	58,490	6.1	27,432	5.0	31,058	7.7
Missouri	143,556	8.6	72,160	6.3	71,396	13.6
North Dakota	18,721	9.3	4,105	4.9	14,616	12.6
South Dakota	20,913	9.4	5,276	5.5	15,637	12.4
Nebraska	38,170	7.5	17,243	5.6	20,927	10.3
Kansas	60,058	7.6	31,351	6.1	28,707	10.5

Source: Census of Housing

Table 20. Percent of owner-occupied housing units: 1970.

	Total	Urban	Rural
United States	62.9	58.4	76.2
Northeast	57.6	52.6	80.5
North Central	68.0	63.7	79.4
South	64.7	60.1	73.5
West	59.0	56.8	70.6
Ohio	67.7	64.0	80.2
Indiana	71.7	66.9	81.0
Illinois	59.4	56.3	75.5
Michigan	74.4	71.1	84.3
Wisconsin	69.1	63.1	81.7
Minnesota	71.5	66.3	82.5
Iowa	71.7	69.4	74.9
Missouri	67.2	62.2	78.8
North Dakota	68.4	55.9	78.1
South Dakota	69.6	61.7	76.1
Nebraska	66.4	62.6	72.5
Kansas	69.1	65.4	76.3

Source: Census of Housing

higher percent of rural owner-occupied housing units than urban.

Housing units for the North Central Region tended to have a slightly higher median number of rooms than the national median (Table 21). Only Illinois (4.9) and Missouri (4.8) had medians that were less than the national median.

The median number of rooms for rural housing units was higher than for urban housing units for all 12 states of the region. Only Missouri and Illinois had a median for rural units of less than 5.3, but no states of the region had median number of rooms for urban housing units greater than 5.2.

One indication of the quality of living conditions is the measure of the number of persons per room per occupied housing unit. A high ratio of persons per room indicates crowded living quarters. Table 22 gives the percent of occupied housing units with 1.01 or more persons per room for urban and rural areas.

The North Central Region had a slightly lower percentage of crowded living quarters (7.3 percent) than the national average (8.2 percent). Only North Dakota (9.1 percent) and South Dakota (9.0 percent) had percentages above the national average. As was pointed out before these two states had net decreases in population for the past decade and also had the highest percentages of vacant housing or potential housing

Table 21. Median number of rooms per year-round housing unit: 1970

	Total	Urban	Rural
United States	5.0	4.9	5.1
Northeast	5.1	5.0	5.6
North Central	5.1	5.0	5.4
South	4.9	4.9	4.9
West	4.7	4.7	4.7
Ohio	5.3	5.2	5.6
Indiana	5.0	4.9	5.3
Illinois	4.9	4.9	5.2
Michigan	5.2	5.2	5.3
Wisconsin	5.2	5.1	5.5
Minnesota	5.1	5.0	5.4
Iowa	5.3	5.0	5.8
Missouri	4.8	4.8	4.9
North Dakota	5.0	4.7	5.3
South Dakota	5.1	4.8	5.3
Nebraska	5.1	4.9	5.5
Kansas	5.1	5.0	5.3

Source: Census of Housing

Table 22. Percent of occupied housing units with 1.01 or more persons per room: 1970

	Total	Urban	Rural
United States	8.2	7.6	10.1
Northeast	6.5	6.6	6.4
North Central	7.3	7.1	8.0
South	10.3	9.1	12.6
West	8.4	7.6	12.5
Ohio	6.6	6.2	7.9
Indiana	8.0	8.0	8.2
Illinois	7.8	7.9	7.4
Michigan	7.6	7.3	8.6
Wisconsin	7.2	6.5	8.6
Minnesota	7.4	6.4	9.4
Iowa	5.9	5.9	5.8
Missouri	8.2	7.7	9.3
North Dakota	9.1	8.2	9.8
South Dakota	9.0	7.7	10.1
Nebraska	6.2	6.3	6.1
Kansas	5.9	5.8	6.2

Source: Census of Housing

surplus for 1970.

Rural areas tended to have a higher percent of crowded units than urban areas. Illinois, Iowa, and Nebraska were exceptions to the rule as the percentages for urban units were slightly higher than for rural units.

Another measure of housing quality is the kind of plumbing facilities that are available for housing units. Complete plumbing facilities for a housing unit are defined by the Census Bureau as piped hot and cold water, a flush toilet, and a shower or bathtub. Also these plumbing facilities must be inside the housing structure and intended for exclusive use of the occupying household. Table 23 gives the percentages of year-round housing units that lack some or all plumbing facilities.

The percent of housing units that lack some plumbing facilities is much higher for rural areas than for urban areas for all states of the region. For the region as a whole the rural percentage is approximately 4 times the urban percentage (3.4 to 13.3 percent). In Michigan, Iowa, Nebraska, and Kansas about 1 of every 10 rural housing units was lacking some plumbing facilities. In Missouri, North Dakota, and South Dakota at least 1 of every 5 rural housing units was lacking some plumbing facilities. For total housing units (urban plus rural), the two Dakotas had percentages that were approximately double the national average.

Table 23. Percent of year-round housing units lacking some or all plumbing facilities: 1970

	Total	Urban	Rural
United States	6.9	3.4	16.9
Northeast	3.9	2.9	8.4
North Central	6.2	3.4	13.3
South	11.9	4.8	25.1
West	3.3	2.1	9.3
Ohio	5.2	2.8	12.9
Indiana	6.5	4.0	11.2
Illinois	4.8	3.5	11.4
Michigan	4.4	2.3	10.0
Wisconsin	7.2	3.7	13.9
Minnesota	8.2	4.1	16.3
Iowa	7.5	5.0	10.9
Missouri	9.7	4.3	21.5
North Dakota	13.8	5.0	20.1
South Dakota	13.6	5.1	20.1
Nebraska	6.1	3.1	10.7
Kansas	5.6	2.7	10.9

Source: Census of Housing

In summary, the North Central Region had a smaller increase in housing inventory over the last decade than the national average, but it maintained an occupancy rate about equal to the national average. The dominantly rural areas have a higher rate of vacancy than the urban areas, reflecting the rapid rate of farm consolidation and out-migration. Owner occupancy in the region is higher than the national average, particularly in the rural areas. Houses in the region tend to be slightly larger, as measured by room size, than for the rest of the nation. The quality of rural housing in the region shows up very poorly when availability of inside plumbing is used as a measure of quality. The percent of rural housing units without complete plumbing is almost four times the urban rate. Rural housing of the region can be characterized as having twice as high a vacancy rate, slightly higher owner occupancy rate, slightly more rooms, and considerably more units with inadequate plumbing than urban housing in the region.

Summary

Numerous indicators of social and economic development have been discussed throughout this report with emphasis on rural America in the North Central Region. Less emphasis has been placed on the conditions of rural people (as traditionally defined) than desired, but primarily this is a result of two situations. First, the best data series to evaluate economic and social conditions is not collected separately for rural and nonrural segments of the population. Agriculture census data, of course, relates to rural people, but primarily to rural-farm people and does not include rural-nonfarm people which make up a significant portion (23.4 percent) of the population in the North Central Region.

The second situation deals with the definition of "rural" which is appropriate when discussing rural development. Within the new and broader concept of rural development as proposed for national policy, rural includes everyone living outside urban centers of approximately 50,000. Much debate of the minimum size of the urban centers is still taking place, but the concept does include many urban places which previously were not considered a part of rural America. Within the concept of development, the many social, political, and economic interactions require whole communities, states, and regions to be involved in the process, not just the farmers. Consequently, under the new rural development effort, large numbers of people are involved which would be excluded if "rural" continued to be associated with "farm." As defined by the Bureau of Census, rural population includes all persons living in the open country or in towns of less than 2,500. Because most of the data used in this report had been collected aggregatively on a county basis, analysis could cnly be conducted by indentifying whole counties by their population characteristics and evaluating rural conditions on this basis. Although this approach is not consistent with many earlier studies which use rural and farm interchangeably, it is consistent with the concept of rural as used in the new rural development policy and is the approach which likely will be used in future rural development studies. Development problems do not align themselves with city, county, or state boundaries or to particular sectors of the economy, and those who study rural development problems must recognize the implications.

The North Central Region had slightly more than 27 percent of the United States' population in 1970. Both population and business activities were scattered unevenly over the region with major concentrations of both people and economic activity in the western end of the manufacturing belt, which extends across Ohio, Indiana, Illinois, Michigan, and Wisconsin. The percent of population that is rural varies from a low of 17 percent in Illinois to a high of 55.7 percent in North Dakota with the average for the region being 28.2 percent. Likewise, population density varies greatly from a high of 259.8 people per square mile in Ohio to a low of 8.8 people in South Dakota. Throughout the region population is highly correlated with all forms of business activity, but most highly correlated with construction and manufacturing. This does not define a cause and effect relationship, but it does indicate that business activity is important to the location of population.

The data indicates that population growth in the North Central Region has been slower than national population growth during the decade from 1960 to 1970. Within the region, the western portion has grown significantly slower than the eastern portion. The areas of the region that have seen the most rapid increase in population are those in or directly around the manufacturing belt, the area around Lake Michigan. These trends are not new trends and should come as no surprise to anyone. They are trends which have been distinguishable for 20 or 30 years, and even longer in some areas of the region. Although the trends have been ignored by many in the past, they are the trends which gave birth to many of our current social and economic problems, and they will compound those problems even further in the future unless they become an integral part of future planning.

Business activity in the region is dominated in terms of persons employed by manufacturing (over 6.6 million), retail trade (over 3.1 million), and services (over 2.6 million). Other important employment sectors in order of importance are wholesale trade, transportation and utilities, financial services, and contract construction. Business employment, like population, is dominated by a few states. Ohio, Illinois and

Michigan account for more than 57.7 percent of all the employment in the region.

One distinguishing characteristic of the business employment patterns of the Region is the relative consistency of business activity from state to state. With the exception of manufacturing, the percent of population employed by construction (1-2 percent), transportation (1-2 percent), wholesale trade (2-3 percent), retail trade (5-6 percent), financial services (1-2 percent), and general services (4-5 percent) did not vary by more than 1 percent between states. The change in employment in all business activities varies from state to state over the period from 1959 to 1969, and ranged only from a 19.7 percent increase in Indiana to a 43.2 percent increase in Minnesota. Even with this amount of differential change, no state increased or lost more than one percent of the region's employment during the 1959 to 1969 period.

Within agriculture, two changes have been outstanding. Farm numbers declined by more than 21 percent, and farm size increased by more than 20 percent from 1959 to 1969. The result has been only a slight reduction in land under cultivation but a rapid increase in farm consolidation. As with the population trends, these trends have been with us since the 1930's, and with anticipation of continued generation of new technology, these trends will also be with us in the future unless new programs are developed.

Farm size, like population density, is closely associated with geography, with the smallest farms in the eastern part of the region and the largest in the western part. Value of products sold per acre is closely associated with and inversely related to farm size. Throughout the region there seems to be a tendency toward minimum sales of $10,000 per farm. As an indicator of the amount and location of change taking place in agriculture, farm size has changed most in a band around the region from southern Indiana, through the western states, and back along northern Minnesota. In the center of the region, farm size has increased by less than 50 percent over the 24-year period from 1940 to 1964.

Sales of all farm products increased significantly from 1959 to 1969, and even after price deflation, real income increased. A very slight shift toward greater livestock sales has taken place. Although the production shifts were not uniform throughout the region, no state increased or decreased its share of the region's income by more than one percent. Although rising costs and price-cost squeeze are often given as proof that the farmer is not doing well, the data indicates that net profit increased in both absolute and real terms from 1959 to 1969. True, expenses did increase by more than 50 percent, but productivity of resources increased more than enough to offset the additional cost.

Local and county government expenditures, a primary factor in tax level, vary from $244 to $372 per capita in the various states. Although not perfectly correlated with density of population, per capita expenditures for local and county government generally show an inverse relationship. This fact is one which is causing major concern in the sparsely populated rural areas. Not only is it getting increasingly difficult to deliver services to the rural population, but it is also becoming increasingly expensive. In particular, costs of education, highways, and natural resources are negatively correlated with population density and represent increasing costs as density declines. Obviously, the solution to the cost problem is not urbanization alone, because per capita expenditures for health services, police protection, parks and recreation, correction, and interest on general debt are all positively correlated with population density. Thus increased density means increased cost for these items.

Various other indicators suggest wide variation in the region. Labor force per county varies from well over 20,000 in the eastern part of the region to less than 5,000 in the western part of the region. Unemployment is concentrated in northern Minnesota, Wisconsin, and Michigan, but arises in small pockets throughout the region. Median level of family income tends to be highest in the industrial states and lowest in the agricultural states. Likewise, the counties with a concentration of high income families are located in the industrial areas and those with a concentration of families with low income are dominately in the agricultural areas. Level of education among those over 25 years of age is fairly uniform over the Region with most counties workers having an average of 12 years' education or more. However, two areas fall well below the region average--one in southern Missouri and Illinois and one in the Dakotas and western Minnesota.

In summary, it appears that the region has an abundance of resources, a well educated labor force, a relatively high median family income, and no unique or obvious obstruction to development. Yet, the various indicators show that the region is heterogeneous in many aspects, and the same variance exists in level of living and quality of life. Numerous trends and distribution patterns have been identified, most of which are not new, which are influencing the level of living in the region. Although we have been aware of these trends for years, we have ignored them for the most part until very recently. Many of the problems of providing services to sparsely populated regions at a reasonable cost have plagued the western states for years, but only recently have other states felt the pressure of changing times. Now the nation as a whole is beginning to face the reality that past trends will not likely reverse themselves without extensive planning and resource inputs. The time has come to identify what we aspire to when we search for higher quality life--what resources are needed, what institutions must be changed, and what plan of action will compensate for past trends (and probable future trends) which lead away from the goals of society. The problem is much larger than individuals or even communities, and requires extensive coordination of resources. Consequently, we have declared rural development to be a national policy. The policy establishes the direction, but the programs to implement the policy must still be developed. The time has come to define the quality of life desired in rural America and to develop the systems that will deliver it.

APPENDIX

Table A.1. Listing of counties of the North Central Region by urban and rural classification

OHIO

Number	Urban	Rural	Deleted
001		Adams	
002	Allen		
003	Ashland		
004		Ashtabula	
005	Athens		
006		Auglaize	
007	Belmont		
008		Brown	
009	Butler		
010		Carroll	
011		Champaign	
012	Clark		
013		Clermont	
014		Clinton	
015	Columbiana		
016		Coshocton	
017	Crawford		
018	Cuyahoga		
019		Darke	
020	Defiance		
021		Delaware	
022	Erie		
023		Fairfield	
024		Fayette	
025	Franklin		
026		Fulton	
027		Gallia	
028		Geauga	
029	Greene		
030		Guernsey	
031	Hamilton		
032	Hancock		
033		Hardin	
034		Harrison	
035		Henry	
036		Highland	
037		Hocking	
038		Holmes	
039		Huron	
040		Jackson	
041	Jefferson		
042		Knox	
043	Lake		
044	Lawrence		
045	Licking		

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
046		Logan	
047	Lorain		
048	Lucas		
049		Madison	
050	Mahoning		
051	Marion		
052		Medina	
053		Meigs	
054		Mercer	
055	Miami		
056		Monroe	
057	Montgomery		
058		Morgan	
059		Morrow	
060		Muskingum	
061		Noble	
062		Ottawa	
063		Paulding	
064		Perry	
065		Pickaway	
066		Pike	
067	Portage		
068		Preble	
069		Putnam	
070	Richland		
071		Ross	
072	Sandusky		
073		Scioto	
074	Seneca		
075		Shelby	
076	Stark		
077	Summit		
078	Trumbull		
079	Tuscarawas		
080		Union	
081	Van Wert		
082		Vinton	
083		Warren	
084		Washington	
085		Wayne	
086		Williams	
087	Wood		
088		Wyandot	
INDIANA			
001		Adams	
002	Allen		
003		Bartholomew	
004		Benton	
005	Blackford		

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
006		Boone	
007		Brown	
008		Carroll	
009		Cass	
010	Clark		
011		Clay	
012		Clinton	
013		Crawford	
014		Daviess	
015		Dearborn	
016		Decatur	
017		DeKalb	
018	Delaware		
019		Dubois	
020	Elkhart		
021	Fayette		
022	Floyd		
023		Fountain	
024		Franklin	
025		Fulton	
026		Gibson	
027	Grant		
028		Greene	
029		Hamilton	
030		Hancock	
031		Harrison	
032		Hendricks	
033		Henry	
034	Howard		
035		Huntington	
036		Jackson	
037		Jasper	
038		Jay	
039	Jefferson		
040		Jennings	
041	Johnson		
042	Knox		
043		Kosciusko	
044		Lagrange	
045	Lake		
046	LaPorte		
047		Lawrence	
048	Madison		
049	Marion		
050		Marshall	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
051		Martin	
052		Miami	
053	Monroe		
054		Montgomery	
055		Morgan	
056		Newton	
057		Noble	
058		Ohio	
059		Orange	
060		Owen	
061		Parke	
062		Perry	
063		Pike	
064	Porter		
065		Posey	
066		Pulaski	
067		Putnam	
068		Randolph	
069		Ripley	
070		Rush	
071	St. Joseph		
072	Scott		
073		Shelby	
074		Spencer	
075		Starke	
076		Steuben	
077		Sullivan	
078		Switzerland	
079	Tippecanoe		
080		Tipton	
081		Union	
082	Vanderburgh		
083		Vermillion	
084	Vigo		
085	Wabash		
086		Warren	
087		Warrick	
088		Washington	
089	Wayne		
090		Wells	
091		White	
092		Whitley	
ILLINOIS			
001	Adams		
002	Alexander		
003		Bond	
004	Boone		
005		Brown	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
006		Bureau	
007		Calhoun	
008		Carroll	
009		Cass	
010	Champaign		
011		Christian	
012		Clark	
013		Clay	
014		Clinton	
015	Coles		
016	Cook		
017		Crawford	
018		Cumberland	
019	DeKalb		
020		DeWitt	
021		Douglas	
022	DuPage		
023		Edgar	
024		Edwards	
025		Effingham	
026		Fayette	
027		Ford	
028		Franklin	
029		Fulton	
030		Gallatin	
031		Greene	
032		Grundy	
033		Hamilton	*****
034		Hancock	
035		Hardin	
036		Henderson	
037	Henry		
038		Iroquois	
039	Jackson		
040		Jasper	
041	Jefferson		
042		Jersey	
043		JoDaviess	
044		Johnson	
045	Kane		
046	Kanakee		
047		Kendall	
048	Knox		
049	Lake		
050	LaSalle		
051		Lawrence	
052		Lee	
053		Livingston	
054	Logan		
055	McDonough		

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
056	McHenry		
057	McLean		
058	Macon		
059		Macoupin	
060	Madison		
061	Marion		
062		Marshall	
063		Mason	
064		Massac	
065		Menard	
066		Mercer	
067		Monroe	
068		Montgomery	
069	Morgan		
070		Moultrie	
071		Ogle	
072	Peoria		
073	Perry		
074		Piatt	
075		Pike	
076		Pope	
077		Pulaski	
078		Putnam	
079		Randolph	
080	Richland		
081	Rock Island		
082	St. Clair		
083	Saline		
084	Sangamon		
085		Schuyler	
086		Scott	
087		Shelby	
088		Stark	
089	Stephenson		
090	Tazewell		
091		Union	
092	Vermilion		
093	Wabash		
094	Warren		
095		Washington	
096		Wayne	
097		White	
098	Whiteside		
099	Will		
100	Williamson		
101	Winnebago		
102		Woodford	

Table A.1. Listing (Continued)

MICHIGAN

Number	Urban	Rural	Deleted
001		Alcona	
002		Alger	
003		Allegan	
004		Alpena	
005		Antrim	
006		Arenac	
007		Baraga	
008		Barry	
009	Bay		
010		Benzie	
011		Berrien	
012		Branch	
013	Calhoun		
014		Cass	
015		Charlevoix	
016		Cheboygan	
017	Chippewa		
018		Claire	
019		Clinton	
020		Crawford	
021	Delta		
022	Dickinson		
023		Eaton	
024		Emmet	
025	Genesee		
026		Gladwin	
027	Gogebic		
028		Grand Traverse	
029		Gratiot	
030		Hillsdale	
031		Houghton	
032		Huron	
033	Ingham		
034		Ionia	
035		Iosco	
036		Iron	
037		Isabella	
038	Jackson		
039	Kalamazoo		
040		Kalkaska	
041	Kent		
042		Keweenaw	
043		Lake	
044		Lapeer	
045		Leelanau	
046		Lenawee	
047		Livingston	
048		Luce	
049		Mackinac	
050	Macomb		

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
051		Manistee	
052	Marquette		
053		Maxon	
054		Mecosta	
055		Menominee	
056	Midland		
057		Missaukee	
058		Monroe	
059		Montcalm	
060		Montmorency	
061	Muskegon		
062		Newaygo	
063	Oakland		
064		Oceana	
065		Ogemaw	
066		Ontonagon	
067		Osceola	
068		Oscoda	
069		Otsego	
070		Ottawa	
071		Presque Isle	
072		Roscommon	
073	Saginaw		
074		St. Clair	
075		St. Joseph	
076		Sanilac	
077	Schoolcraft		
078		Shiawassee	
079		Tuscola	
080		VanBuren	
081	Washtenaw		
082	Wayne		
083	Wexford		
WISCONSIN			
001		Adams	
002	Ashland		
003		Barron	
004		Bayfield	
005	Brown		
006		Buffalo	
007		Burnett	
008		Calumet	
009		Chippewa	
010		Clark	*****

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
011		Columbia	
012		Crawford	
013	Dane		
014		Dodge	
015		Door	
016	Douglas		
017		Dunn	
018	Eau Claire		
019		Florence	
020	Fond Du Lac		
021		Forest	
022		Grant	
023		Green	
024		Green Lake	
025		Iowa	
026		Iron	
027		Jackson	
028	Jefferson		
029		Juneau	
030	Kenosha		
031		Kewaunee	
032	La Crosse		
033		Lafayette	
034		Langlade	
035	Lincoln		
036	Manitowoc		
037		Marathon	
038		Marinette	
039		Marquette	
040	Milwaukee		
041		Monroe	
042		Oconto	
043		Oneida	
044	Dutagamie		
045	Ozaukee		
046		Pepin	
047		Pierce	
048		Polk	
049		Portage	
050		Price	******
051	Racine		
052		Richland	
053	Rock		
054		Rusk	
055		St. Croix	******
056		Sauk	
057		Sawyer	
058		Shawano	
059	Sheboygan		
060		Taylor	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
061		Trempealeau	
062		Vernon	
063		Vilas	
064		Walworth	
065		Washburn	
066		Washington	
067	Waukesha		
068		Waupaca	
069		Waushara	
070	Winnebago		
071	Wood		
072		Menomonie	
MINNESOTA			
001		Aitkin	
002	Anoka		
003		Becker	
004		Beltrami	
005		Benton	
006		Big Stone	
007	Blue Earth		
008	Brown		
009		Carlton	
010		Carver	
011		Cass	
012		Chippewa	*****
013		Chisago	
014	Clay		
015		Clearwater	
016		Cook	
017		Cottonwood	
018		Crow Wing	*****
019	Dakota		
020		Dodge	
021		Douglas	
022		Faribault	
023		Fillmore	
024	Freeborn		
025		Goodhue	
026		Grant	
027	Hennepin		
028		Houston	
029		Hubbard	
030		Isanti	
031		Itasca	
032		Jackson	
033		Kanabec	
034		Kandiyohi	
035		Kittson	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
036		Koochinching	
037		Lac Qui Parle	
038	Lake		
039		Lake of the Wood	
040		Le Sueur	
041		Lincoln	
042	Lyon		
043		McLeod	
044		Mahnomen	
045		Marshall	
046		Martin	
047		Meeker	
048		Mille Lacs	
049		Morrison	
050	Mower		
051		Murray	######
052	Nicollet		
053		Nobles	
054		Norman	
055	Olmstead		
056		Otter Tail	
057	Pennington		
058		Pine	
059		Pipestone	
060		Polk	
061		Pope	
062	Ramsey		
063		Red Lake	
064		Redwood	
065		Renville	
066	Rice		
067		Rock	
068		Roseau	
069	St. Louis		
070		Scott	
071		Sherburne	
072		Sibley	
073		Stearns	
074	Steele		
075		Stevens	
076		Swift	
077		Todd	
078		Traverse	
079		Wabasha	
080		Wadena	

Table A.I. Listing (Continued)

Number	Urban	Rural	Deleted
081		Waseca	
082	Washington		
083		Watonwan	
084		Wilkin	
085	Winona		
086		Wright	
087		Yellow Medicine	
IOWA			
001		Adair	
002		Adams	
003		Allamakee	
004		Appanoose	
005		Audubon	
006		Benton	
007	Black Hawk		
008		Boone	
000		Bremer	
010		Buchanan	
011		Buena Vista	
012		Butler	
013		Calhoun	
014		Carroll	
015		Cass	
016		Cedar	
017	Cerro Gordo		
018		Cherokee	
019		Chickasaw	
020		Clarke	
021	Clay		
022		Clayton	
023	Clinton		
024		Crawford	
025		Dallas	
026		Davis	
027		Decatur	
028		Delaware	
029	Des Moines		
030		Dickinson	
031	Dubuque		
032	Emmet		
033		Fayette	
034		Floyd	
035		Franklin	
036		Fremont	
037		Greene	
038		Grundy	
039		Guthrie	
040		Hamilton	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
041		Hancock	
042		Hardin	
043		Harrison	*****
044		Henry	
045		Howard	
046		Humboldt	
047		Ida	
048		Iowa	
049		Jackson	
050		Jasper	
051	Jefferson		
052	Johnson		
053		Jones	
054		Keokuk	
055		Kossuth	
056	Lee		
057	Linn		
058		Louisa	
059		Lucas	
060		Lyon	
061		Madison	
062	Mahaska		
063	Marion		
064	Marshall		
065		Mills	*****
066		Mitchell	
067		Monona	
068		Monroe	*****
069		Montgomery	
070	Muscatine		
071		O'Brien	
072		Osceola	
073	Page		
074		Palo Alto	
075		Plymouth	
076		Pocahontas	
077	Polk		
078	Pottawattamie		
079		Poweshick	
080		Ringgold	
081		Sac	
082	Scott		
083		Shelby	
084		Sioux	
085	Story		

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
086		Tama	
087		Taylor	
088	Union		
089		VanBuren	
090	Wapello		
091		Warren	
092		Washington	
093		Wayne	
094	Webster		*****
095		Winnebago	
096		Winneshiek	
097	Woodbury		
098		Worth	
099		Wright	
MISSOURI			
001	Adair		*****
002		Andrew	
003		Atchison	
004	Audrain		
005		Barry	
006		Barton	
007		Bates	
008		Benton	
009		Bollinger	
010	Boone		
011	Buchanan		
012		Butler	*****
013		Caldwell	
014		Callaway	
015		Camden	*****
016	Cape Girardeau		
017		Carroll	
018		Carter	
019		Cass	
020		Cedar	
021		Chariton	*****
022		Christian	
023		Clark	
024	Clay		
025		Clinton	
026	Cole		
027	Cooper		
028		Crawford	
029		Dade	
030		Dallas	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
031		Daviess	
032		DeKalb	
033		Dent	
034		Douglas	
035		Dunklin	
036		Franklin	
037		Gasconade	
038		Gentry	
039	Greene		
040	Grundy		
041		Harrison	
042	Henry		
043		Hickory	*****
044		Holt	
045		Howard	
046		Howell	
047		Iron	*****
048	Jackson		
049	Jasper		
050		Jefferson	
051	Johnson		
052		Knox	
053		Laclede	
054		Lafayette	
055		Lawrence	*****
056		Lewis	
057		Lincoln	
058	Linn		
059	Livingston		
060		McDonald	
061		Macon	
062		Madison	
063		Maries	
064	Marion		
065		Mercer	
066		Miller	
067	Mississippi		
068		Moniteau	
069		Monroe	
070		Montgomery	
071		Morgan	
072		New Madrid	
073		Newton	
074		Nodaway	
075		Oregon	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
076		Osage	
077		Ozark	
078		Pemiscot	
079		Perry	
080	Pettis		
081	Phelps		
082		Pike	
083		Platte	
084		Polk	
085	Pulaski		
086		Putnam	
087		Ralls	
088	Randolph		
089		Ray	
090		Reynolds	
091		Ripley	
092		St. Charles	
093		St. Clair	
094		St. Francois	
095	St. Louis		
096	St. Louis City	*****	
097		Ste. Genevieve	
098	Saline		
099		Schuyler	
100		Scotland	
101	Scott		
102		Shannon	
103		Shelby	
104		Stoddard	
105		Stone	*****
106		Sullivan	
107		Taney	
108		Texas	
109	Vernon		
110		Warren	
111		Washington	
112		Wayne	
113		Webster	
114		Worth	
115		Wright	
North Dakota			
001		Adams	
002	Barnes		
003		Benson	
004		Billings	
005		Bottineau	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
006		Bowman	
007		Burke	
008	Burleigh		
009	Cass		
010		Cavalier	
011		Dickey	
012		Divide	
013		Dunn	
014		Eddy	
015		Emmons	
016		Foster	
017		Golden Valley	
018	Grand Forks		
019		Grant	
020		Griggs	
021		Hettinger	
022		Kidder	
023		LaMoure	
024		Logan	
025		McHenry	
026		McIntosh	
027		McKenzie	
028		McLean	
029		Mercer	
030	Morton		
031		Mountrail	
032		Nelson	
033		Oliver	
034		Pembina	
035		Pierce	
036	Ramsey		
037		Ransom	
038		Renville	
039		Richland	
040		Rolette	
041		Sargent	
042		Sheridan	
043		Sioux	
044		Slope	
045	Stark		
046		Steele	
047	Stutsman		
048		Towner	
049		Traill	
050		Walsh	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
051	Ward		
052		Wells	
053	Williams		
South Dakota			
001		Aurora	
002	Beadle		
003		Bennett	
004		Bon Homme	
005	Brockings		
006	Brown		
007		Brule	
008		Buffalo	
009	Butte		
010		Campbell	
011		Charles Mix	
012		Clark	
013	Clay		*****
014	Codington		
015		Corson	
016		Custer	
017	Davison		
018		Day	
019		Deuel	
020		Dewey	
021		Douglas	
022		Edmunds	
023	Fall River		
024		Faulk	
025		Grant	
026		Gregory	
027		Haakon	
028		Hamlin	
029		Hand	
030		Hanson	
031		Harding	
032	Hughes		
033		Hutchinson	
034		Hyde	
035		Jackson	
036		Jerauld	
037		Jones	
038		Kindsbury	
039	Lake		
040	Lawrence		

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
041		Lincoln	
042		Lyman	
043		McCook	
044		McPherson	
045		Marshall	
046	Meade		
047		Mellette	
048		Miner	
049	Minnehaha		
050		Moody	
051	Pennington		
052		Perkins	
053		Potter	
054		Roberts	
055		Sanborn	
056		Shannon	*****
057		Spink	
058		Stanley	
059		Sully	
060		Todd	*****
061		Tripp	
062		Turner	
063		Union	
064	Walworth		
065		Washabaugh	*****
066	Yankton		
067		Ziebach	
NEBRASKA			
001	Adams		
002		Antelope	
003		Arthur	
004		Banner	
005		Blaine	
006		Boone	
007	Box Butte		
008		Boyd	
009		Brown	
010	Buffalo		
011		Burt	
012		Butler	
013		Cass	
014		Cedar	
015		Chase	
016		Cherry	
017	Cheyenne		
018		Clay	
019		Colfax	
020		Cuming	*****

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
021		Custer	
022	Dakota		
023	Dawes		
024	Dawson		
025		Deuel	
026		Dixon	
027	Dodge		
028	Douglas		
029		Dumdy	
030		Fillmore	
031		Franklin	
032		Frontier	
033		Furnas	
034		Gage	
035		Garden	
036		Garfield	
037		Gosper	
038		Grant	
039		Greely	
040	Hall		
041		Hamilton	
042		Harlan	
043		Hayes	
044		Hitchcock	
045		Holt	
046		Hooker	
047		Howard	
048	Jefferson		
049		Johnson	
050		Kearny	
051	Keith		
052		Keya Paha	
053	Kimball		
054		Knox	
055	Lancaster		
056	Lincoln		
057		Logan	
058		Loup	
059		McPherson	
060	Madison		
061		Merrick	
062		Morrill	
063		Nance	
064		Nemaha	
065		Nuckolls	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
066		Otoe	
067		Pawnee	
068		Perkins	
069	Phelps		
070		Pierce	
071	Platte		
072		Polk	
073	Red Willow		
074		Richardson	
075		Rock	
076		Saline	
077	Sarpy		
078		Saunders	
079	Scotts Bluff		
080		Seward	
081		Sheridan	
082		Sherman	
083		Sioux	
084		Stanton	
085		Thayer	
086		Thomas	
087		Thurston	
088		Valley	
089		Washington	
090	Wayne		
091		Webster	
092		Wheeler	
093		York	
KANSAS			
001		Allen	
002		Anderson	
003	Atchison		
004		Barber	
005	Barton		
006	Bourbon		
007		Brown	
008		Butler	
009		Chase	
010		Chautauqua	
011	Cherokee		
012		Cheyenne	*****
013		Clark	
014	Clay		
015	Cloud		
016		Coffey	
017		Comanche	
018	Cowley		
019	Crawford		
020		Decatur	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
021		Dickinson	
022		Doniphan	
023	Douglas		
024		Edwards	*****
025		Elk	
026	Ellis		
027		Ellsworth	
028	Finney		
029	Ford		
030	Franklin		
031	Geary		
032		Gove	
033		Graham	
034	Grant		
035		Gray	
036		Gresly	
037		Greenwood	
038		Hamilton	
039		Harper	
040	Harvey		
041		Haskell	
042		Hodgeman	
043		Jackson	
044		Jefferson	
045		Jewell	
046	Johnson		
047		Kearney	
048		Kingman	
049		Kiowa	*****
050		Laane	
051	Labette		
052	Leavenworth		
053		Lincoln	
054		Linn	
055		Logan	
056	Lyon		
057	Mc Pherson		
058		Marion	
059		Marshall	
060		Meade	
061		Miami	
062	Mitchell		
063	Montgomery		
064		Morris	
065		Morton	

Table A.1. Listing (Continued)

Number	Urban	Rural	Deleted
066		Nemaha	
067	Neosho		
068		Ness	
069		Norton	
070		Osage	
071		Osborne	
072		Ottawa	
073	Pawnee		*****
074		Phillips	
075		Pottawatomie	
076	Pratt		
077		Rawlins	
078	Reno		
079		Republic	
080		Rice	
081	Riley		
082		Rooks	*****
083		Rush	
084	Russell		
085	Saline		
086	Scott		
087	Sedgwick		
088	Seward		
089	Shawnee		
090		Sheridan	*****
091	Sherman		
092		Smith	
093		Stafford	
094		Stanton	
095	Stevens		
096		Sumner	
097	Thomas		
098		Trego	
099		Wabaunsee	
100		Wallace	
101		Washington	
102		Wichita	
103	Wilson		
104		Woodson	
105	Wyandotte		
TOTAL	293	732	

PURPOSE OF THE REGIONAL CENTER

THE ESTABLISHMENT of the North Central Regional Center for Rural Development in 1971 represented a commitment to a new type of economic and social development, one that includes rural nonfarm segments of our society—the rural towns and cities—as well as the commercial-farm sector of the region.

The objective of Center research is to build a body of knowledge for improving the quality of life for rural people. People decide personal and public matters on the basis of inherent knowledge and perception of their total environment. It is these decisions that, when aggregated, change the structure of the economy and ecology of the population, influence the quality of life and structure the future. A unique opportunity exists to supply new knowledge to assist rural people and to improve the processes by which people act and make decisions.

Our large cities have problems of overcrowding and deterioration of public services and facilities. Rural America's problem is that of population isolation, restricted employment opportunities, and scarcity of public and private services. If all these problems are to be resolved, we need to develop a planning horizon long enough so that all major factors that are changing the makeup of both city and countryside become flexible and subject to change. Thus, research must essentially encompass a broad, long-range, comprehensive appraisal of all factors involved in the economic and social life of our citizens.

Indeed, the research effort becomes a massive interdisciplinary and logistic framework. It is this that leads the Regional Center to establish cooperation and coordination with all agencies and institutions to maximize rural development efforts and efficiencies of research planning and implementation. It is to this specific set of problems and potentials that the North Central Regional Center for Rural Development is directing its activities.

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